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Original Articles

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SYMPOSIUM ON CANCER.*

I

THE NECESSITY FOR AN EDUCATIONAL CAMPAIGN FOR THE CONTROL OF CANCER.*

By C. JEFF MILLER, M. D., F. A. C. S., New Orleans.

LADIES AND GENTLEMEN: The compliment you have paid the medical profession of New Orleans by responding so promptly to the invitation to participate in the discussion of the subject of cancer is highly appreciated. The invitation was not extended without mature deliberation, for it was only after considering every phase of the situation that the profession agreed that it was time to place the facts regarding cancer squarely before the public. An appeal to the public a few years ago would have been fruitless, for the simple reason that surgery had so little to offer; in fact, until only within the past two decades

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it offered practically no hope to patients afflicted with cancer. We could not tell the truth to patients, because the situation was hopeless. In 1890 D. Hayes Agnew, one of the foremost surgeons of the time, stated that he had never cured a patient of cancer of the breast.

To prove that surgery has made splendid progress in cancerous lesions, it is only necessary to review the statistics now available from the numerous well-organized clinics throughout the world. Surgery is now saving twenty-five per cent of cases of cancer of the breast, when operated upon during the early stage of the disease. Practically the same percentage of permanent recoveries is reported for cancer of the uterus and stomach, when early operation is allowed.

This shows a tremendous improvement in surgical technic, to say nothing of the economic value of the lives saved for the support of families for three to five years in cases not permanently relieved by operation.

Surgeons have been untiring in their efforts to extend the operative field for cancerous lesions, believing that if they could make sufficiently wide removal of growths, they could outdistance the disease. They must now admit that operative technic has reached its limitations. We have perfected methods that now permit of removal of the entire stomach, the breast and uterus, with all the adjacent structures, with comparative safety for the patient. If the final results had improved in the same ratio as operative technic, the situation would be eminently satisfactory, but unfortunately such is not the case. The chief complaint heard throughout the surgical world today is that only a small percentage of cases (less than 10%) seeks surgical relief sufficiently early to permit of a cure. Think of ninety cases out of one hundred, victims of this dreaded disease, seeking relief only after they are doomed.

The medical profession's appeal to you today is to seek your co-operation in changing this state of affairs. We have learned a great deal about cancer that we think you should know—facts that should be common knowledge, truths that should not have to be learned by individual experience. We believe that as much is to be gained by educating the public as to the early manifestations of cancer as has been accomplished in combating tuberculosis by a popular educational campaign. The real status

of the tuberculosis situation today dates from the time when laymen entered the fight. Within a short period the popular campaign waged against tuberculosis, by such men as Eugene Wood and Livingston Ferrand, accomplished astounding results and showed the medical profession what a powerful instrument we possessed in public opinion aided by the public press. As Packer Syms says, "They taught us that frankness and truthfulness could be employed in dealing with these sufferers." This truthfulness became possible, because we can look upon tuberculosis with hopefulness and not with despair. When you can give a man hope, there is no reason why you should not tell him the truth.

The tuberculosis campaign was waged upon three facts, viz., that tuberculosis was communicable, that it was preventable, and that it was curable. When the public was convinced that this was possible, it was an easy matter to enlist their hearty co-operation in a national fight. This campaign was so successful that no intelligent person who reads the daily papers can help but know something about the prevention and cure of this malady.

The profession now makes a similar appeal for your co-operation in a war against cancer. No one can be neutral in this undertaking, for there is probably not a single family that can go back over two generations without having paid toll by the loss of some relation from cancer.

Cancer, with due consideration of its wide distribution and high rate of frequency of occurrence, is a human affection without a parallel in medicine or surgery. Principles of prevention in leprosy and tuberculosis are now well understood, and these affections are under reasonable administrative control and on the decline; whereas, the principles of cancer prevention are as yet but imperfectly unknown and, without the question of a doubt, the mortality from cancerous affections is on the increase in the United States and in most of the civilized world. On the basis of the most trustworthy statistical evidence, the number of deaths from cancer in the United States may be conservatively estimated at 75,000 per annum, and for the civilized world, as a whole, it cannot be less than half a million (Hoffman).

While the above facts on the surface appear totally discour-

aging, it cannot be said that our efforts have been fruitless. We have learned a great deal about cancer itself. While the actual cause of cancer is yet withheld from us, we have learned that it is *first a localized process;* that prolonged irritation predisposes to its development; that cancer does not develop in healthy tissues, but usually appears in chronic inflammatory lesions, old ulcers, birthmarks, etc. If we can prove to you that in its beginning it is a localized process and that it is most likely to develop in neglected, or long-standing, innocent lesions, we give you the keynote to its control. The natural conclusion would be that you must know enough about its early manifestations to seek surgical relief while it is still localized.

The profession wishes the public to know what we have learned about precancerous lesions, for in this phase of the subject lies our main hope until we know the actual cause of cancer. What cannot be cured must be prevented is a motto that is applicable in cancer as in typhoid, or smallpox. You must know that innocent growths may become malignant, that chronic inflammation due to bad teeth, to the presence of gall stones, ulcer of the stomach, and some injuries incident to childbirth—all predispose to cancer. You should know that the majority of cases of cancer of the stomach develop on the site of former ulcers and that seventy per cent of neglected, supposedly harmless, lumps in the breast become malignant. How easy it would be to excise all suspicious breast lumps and have them microscopically examined.

We wish to emphasize the already proven fact that the majority of cases of cancer are curable in the beginning. If you are to have an operation, why not have it in time. It will be charged by the ignorant and unscrupulous quack that this campaign is fostered by surgeons for their own profit. This accusation is easily answered. The surgeon will get you sooner or later and the fee will not be the less, because the labor you demand is the more. All the surgeon expects to receive will be the satisfaction of doing better work and of saving more human lives.

Bloodgood very correctly says that we want you to fear the beginning, not the end of cancer. You should know the conditions that predispose to cancer and the earliest known symptoms.

One of our first efforts will be to destroy the popular belief that pain is the most constant and chief symptom of malignancy. To many the idea that cancer can exist without pain is preposterous. Pain is really a late symptom, unless some important bodily function is involved early in the process. In most cases when pain becomes prominent the patient is already doomed.

We believe that you should know that few physicians are able to tell positively the nature of growths without the aid of the microscope; that when a lesion has progressed sufficiently for him to say positively, "that is cancer," that the process is already advanced dangerously far towards the inoperable state. Treating lumps by massage, liniments and salves, while waiting for developments, belongs to the methods of the dark ages in medicine.

You should know enough about the importance of microscopical and clinical methods to resent such delays if suggested by a physician, or friends, and know when you are obtaining rational advice. There is not a single person present who does not know that early operation is the safest treatment for appendicitis. If operation is delayed and the patient dies, the surgeon is not blamed for the disastrous results, but the physician who advised delay must assume the responsibility, and very correctly so. It required many years of constant drilling within and without the profession, backed up with volumes of proof, before this attitude towards appendicitis was accepted. This came about through educating the public, and no little credit is due the daily press for its share in moulding opinion by reporting the successful operations and discussing various phases of the disease.

All honor is due the public press of America for the promptness with which it grasped the true meaning of the proposed cancer campaign. Practically every powerful news organization of the country tendered its services and these have, within a comparatively short time, done splendid work for the cause. Some members of the medical profession doubted the wisdom of a publicity campaign because they believed it might create a panicky feeling, or cancerphobia, among the people. Another objection was the magnitude of the undertaking. The first fear has not been realized; on the contrary, many who harbored

seemingly innocent growths have been influenced to undergo examination and have been saved from untimely death.

The second objection is easily met. We know that you can educate small communities, because it has been done, and it will be just as easy to educate millions if you use the proper agencies, viz., the united press of the country, which sends its messages into every hamlet of the world.

The American Medical Association was the first large representative body to take up the question of education. Its labors were chiefly aimed at preaching early diagnosis to the family physician and showing him that early operation was successful.

The next great impetus was given the question at a meeting of the Clinical Congress of Surgeons of North America, in 1912. After discussing the results of operations presented by master surgeons, the organization endorsed resolutions authorizing an active campaign. The proposal promptly received the endorsement of all the leading national associations, particularly the American Gynecological Society and, through the efforts of some of its prominent members, sufficient funds were found to warrant the foundation of a cancer society. This society has been incorporated, with charter, by-laws and officers, under the name of the American Society for the Control of Cancer. The word "control" was adopted, because the world should know that the medical profession has accumulated facts that will prove that the menace of cancer can be controlled.

This organization aims to establish a clearing house of information on cancer and to become the channel through which authoritative statements based on the study of medical and statistical records will be made from time to time. Such statements will represent no single individual or institution, but a collective opinion based upon available evidence from many individuals and institutions who, in the past, and at present, have been and are treating cancer, and who have kept the evidence and have ascertained the ultimate results. When, by this method, new light is thrown on the subject, the findings will be spread abroad through every available channel. The Society will endeavor to obtain co-operation of periodicals, the daily press, and will further the organization of lecture courses for women's clubs, social service workers and whenever opportunity offers.

With this splendid organization already equipped and actively

at work, only one factor is necessary to insure its success. The work cannot be done without money. The labor cannot be purchased at any price, for it will be cheerfully given by the profession, but the necessary expenses for carrying on the clerical duties must be met by donations, or a nominal membership fee.

As the local member of the Executive Committee of the American Society for the Control of Cancer, I ask your hearty endorsement of the work it is attempting, and cordially invite you to become a member. The annual fee is nominal, and every dollar spent in this movement may mean the saving of some worthy member of this community.

II

THE PRECANCEROUS STAGE; PREDISPOSING CAUSES OF CANCER, INCLUDING HEREDITARY INFLUENCE.*

By WILLIAM H. HARRIS, M. D., New Orleans, La.

A specific histo-pathological picture for the so-called precancerous stage has not been recognized by pathologists, *i. e.*, there is no microscopical picture preceding that of definite cancer by which one can say this lesion will absolutely become cancer. Under the microscope the condition either is cancer or it is not cancer. We do find, however, evidences of certain tissue disturbances and changes which, together with the careful clinical observations and history obtained by the surgeon, would suggest the strong likelihood of the future occurrence of cancer. These same pictures, however, are capable of resolution and of repair.

The word cancer means "crab," and has been applied to this growth because from the main body of the tumor there extends processes spreading into the surrounding tissues or flesh, hence supplying the fantastic ideas of the legs and claws of the crab. The opinion is prevalent among the laity that a tumor is one form of growth and that a cancer is another; such, of course, is not the case. Tumor is the genus or general term covering all growths, and cancer is a species, or one form. In other words every cancer is a tumor but every tumor is not a cancer. So it occurs that when the tumor does not happen to be a cancer the tendency on the part of the laity is to call all such growths

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tumors. Besides cancer there are many other forms of tumors, as, for example, those of the fatty tissues or a lipoma, tumors of the muscles or a myoma, of which the most common form is the fibroid tumor of the uterus or womb. Again we have tumors composed of bone tissue, called osteoma; of cartilage or gristle called chondroma, and thus on to a considerable extent.

Physicians make a distinction between cancer, or carcinoma, and sarcoma, both forms of which are malignant, *i. e.*, usually fatal. Cancer, or carcinoma, is a growth of the epithelial cells, *i. e.*, those units of the human body which carry on its many functions, whereas sarcoma is a tumor of the connective tissue, *i. e.*, those strands of tissue which form the supporting framework for the functioning epithelial cells. Cancer usually occurs in old age and after middle life, whereas sarcoma usually occurs in children and before middle life; there are exceptions, however, to these general rules.

Before defining cancer, therefore, let us see what is meant by the general term tumor. A tumor is a new formation of cells, usually more or less circumscribed. These cells multiply continuously and without the control of normal regulations of the body; they tend to mimic the cells from which they arise. Tumors serve no useful purpose and lack an orderly structural arrangement. They have, at least at the present time, no definite assignable cause for their existence. We mean by a malignant tumor, of which the cancer is a very common form, one in which certain of its units, called cells, are apt to be carried either by the blood system or lymphatic system to other parts of the body. This we call metastasis. For instance, in a cancer of the stomach portions are commonly carried to the liver, or, again, in a cancer of the breast metastasis to the glands under the arm occurs quite frequently, *i. e.*, parts of the cancer are carried by certain tubular channels of the body, the blood and lymph vessels, to these little nodules called lymphatic glands. These portions thus carried when lodged into the gland structure have the power of continuing their growth and thus forming secondary tumors. Herein is the most important feature of early diagnosis of cancer, for it is usually only after the cancer has grown some time that the little portions are wafted away to form secondary tumors; hence, if advice is sought in the very beginning of the growth and an absolute diagnosis is made,

which often can only be revealed at this very early stage by a careful microscopical examination, the outlook for treatment is much less gloomy. It is the failure on the part of the patient suffering with little ulcers that will not heal, or little swellings or knots that do not disappear, to consult their doctor, which fact permits of the advancement of these growths to such an extent as to allow the dissemination of cancer to other regions close by or remote from the original growth. It is the strict duty of the doctor consulted to clear up absolutely the character of any such suspicious condition. The importance of regarding seriously any irritated pigmented mole, chronic ulcer of the tongue from a jagged tooth, persisting small lump of the breast and the like, I shall leave for the other speakers to emphasize from their vast experiences in their special lines.

WHAT IS THE CAUSE OF CANCER?

The worker who can supply evidence or research demonstration furnishing the undoubted answer to this question shall become a second Pasteur.

The present status of the cause of cancer is found, on the one hand, in the opinions of men drawn from careful and extensive observations, or, on the other hand, from the very interesting work upon the tumors of lower animals. We can, therefore, group these considerations of the cause of cancer under two heads. Opinions from observation, or theories or hypotheses and experimental work upon cancer and other tumors of various animals, as, for instance, mice, chickens, fish, etc.

The theories are those of Cohnheim and of Ribbert. Cohnheim has formed the hypothesis that all true tumors arise in faulty embryonal development. He considers that parts of the body or cells during development previous to birth may be displaced or become superfluous or do not take on their proper function. These may so remain after birth for years, and in later life commence growing in their eccentric uncontrollable manner. There is no doubt that this theory is clearly supported in certain forms of tumors, for instance in the black mole, which is certainly a localized faux pas, or error on the part of nature, and from which certain tumors do spring. Again, the misplaced cells called "rests," as where cancers or some other form of tumor are found having the definite structure

mimicing some organ remote from the tumor, as adrenal and thyroid "rests." This theory is, of course, most strikingly applicable in the dermoid tumors or teratomata, which tumors are absolute evidences of the imperfection of nature, in as much as bone, hair, teeth, sometimes contained in a part of the lower jaw, skin and the like are often found. It is considered that these are really evidences of a misplaced little brother or sister which nature intended to form as a twin to the person burdened with such. While this theory of latent or misplaced cells at birth does definitely explain certain of the tumors it cannot fit in with all.

Ribbert's and Weigert's Theory: These observers consider that if the normal relations of cells of the human economy are disturbed to such an extent that the normal restraint or equilibrium is lost, the consequence is that an abnormal uncontrollable growth is then assumed. In this theory, the evidence of cancer formation by continued irritation and chronic inflammation finds a ready elucidation, such as the skin cancer of the lip from pipe smoking, the cancer of the tongue from jagged teeth, the cancer of the womb from a long standing ulcer of its mouth or cervix, etc. But again, there are many instances in which this idea or hypothesis cannot be made to dovetail.

To leave the theoretical side and consider the practical experimentation that has been accomplished, it might be well, in conclusion, to narrate certain of the works bearing upon the cause of cancer and other tumors in the lower animals.

Peyton Rous, of the Rockefeller Institute, has found and definitely proven that certain tumors of chickens can be macerated and emulsified and the fluid expressed. This juice can then be passed through a filter, through which some of the smallest germs cannot pass, and the filtered part be injected into the breast of another chicken and a similar tumor will arise in the course of time. It is noteworthy that these tumors are more constantly produced in hens of the same breed.

Gaylord and Marsh have shown that the cancer in fish is capable of transmission to other fish. They employ the fish of the salmon species which have cancer. After placing them in tanks and allowing them to sojourn there for some time, they are removed. During that time scum has formed upon the sides and bottom of the tank and the water has been, of

course, polluted. When fresh fish are placed therein, they also become victims of carcinoma. Placing certain chemicals, such as iodin, mercury and arsenic, favorably affects the disease and interferes with the cancer's production.

Probably the most interesting work in the lower animal and bearing especially upon the question of the influnce of heredity is that of Maud Slye upon cancer in mice. The study of this type of animal cancer is of especial interest in that it resembles most strongly the cancer of the human. Maud Slye has worked with a stock of over 10,000 mice during a period of over eight years. It is readily appreciated that the records bearing upon the inheritability of cancer in the human are narrow and liable to many flaws. One rarely has the opportunity of observing more than two generations, and again the clinical histories are subjects of much ignorance and many fallacies. It is probable that the greater number of us here present have no knowledge of the cause of death of our grandparents, certainly not at least of our great-grandparents, and whatever knowledge we may have is liable to much incorrectness. Hence the almost hopeless research facilities on the problem of heredity in human cancer. The field for observations of inherited influences in cancer of mice, however, is very vast in that the number of generations observed is very great and the experimental opportunity of inbreeding and hybridizing cancerous strains is easily carried out. Slye has observed that cancer formation tendencies can be hybridized and bred out of mice at will. This potentiality can be controlled with the regularity of the Mendelian Law, just as albinism and the whirling property can thus be manipulated. She finds that even with healthy mates having cancerous ancestors on both sides the progeny is very prone to cancer in a large percentage of instances. With a cancer lineage on one side only the progeny develop cancer to a lesser extent, and so on remarkable results are obtained by balancing the various factors. She is not of the opinion that cancer per se is inherited, but that a predisposition and great liability is thus carried through generations. It is seen through her work that such offsprings, when the cancer age has been reached, develop such growths upon certain provocations, such as injuries from fighting or from accidents in the cages, the irritation of misplaced teeth, injuries produced by nursing and the like.

III

SKIN CONDITIONS WHICH LEAD TO CANCER.*

By ISADORE DYER, Ph. B., M. D., New Orleans, La.

We have to do tonight only with cancers which affect the skin. It is permitted, therefore, to discuss for a moment the explanation of the occurrence of skin cancer, without attempting to be too scientific before a lay audience.

At this time no one knows what causes cancer; there are many theories. Some believe they are of chemical origin and come from certain articles of diet, especially meat; another chemical theory suggests that cancer occurs oftenest among those whose occupation forces them to inhale smoke and soot, as chimney-sweeps. Quite a few contend that cancer is contagious, and its rapid spread and its occurrence in families would help out this opinion. Already certain microscopic organisms have been suggested as the cause, explaining the contagion; but none of these theories have been proven.

Skin cancer has many characters different from cancers in other organs; different in their physical appearances and in the ways in which some of them grow. Why skin cancer should occur at all we do not know, but we can have an opinion just as well as the other theorists. Some of us believe that where skin cancer occurs, there is some susceptibility to this disease, some predisposition born with the individual. We try to explain this by comparing the human being to a building, in which many sorts of materials are used for its construction. After the building (the human body in our argument) is completed there are remnants of the materials left over and lying about, ready to catch on fire at the first opportunity. This idea of cancer is that advanced by Colnheim, already discussed by Dr. Harris.

With the human body these materials must remain somewhere inside or on the body, for the time being as a part of it. Now such materials may take many different forms. In one person it may be an extra finger or toe; in another individual it may be a wart or a mole; in another, it may be a birthmark, or an overgrowth of hair in the wrong place; in another it may take the form of a cyst, or a fat tumor, or a muscle tumor—each showing an unnecessary provision of tissue, not forming a

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natural part of the makeup of a perfect human being. Such excess of tissues of various sorts are so common that certain disfigurements caused by them are used to identify the individual, particularly when the disfigurement is different or unusual in its form.

Now many, even most, of these extra tissues or materials are of no serious significance to the individual bearing them. Some of them, however, are of importance, especially those which, like timber and shingles in the building (to continue our comparison), are inflammable when the accident occurs which sets them on fire.

Most skin cancers owe their development to the presence of left-over cells originally used to make the superficial skin, and with the surplus cells deposited here and there in the skin, particularly where you would most expect to find them:

On the Lips;
On the Nose;
On the Eyelids;
On the Cheeks;
On the Ears;
On the Neck;
On the Backs of the Hands.

We may find skin cancer in other locations, but these places are where we *expect to find them.*

The age at which skin cancer may begin should be figured at twenty-five, though it seldom appears before thirty. With the progressing maturity of the individual after thirty the likelihood of skin cancer increases; in other words, the older the person the less the resistance in the skin structures. Just like anything else in the world, as it grows old the skin begins to break up, or better, to break down. If the breaking down process happens at one of the material deposits of overplus cells, the process is rapid and a cancer results.

Now the kind of things on the skin which must be observed for cancer are not as many as they are important:

All Moles or Warts which grow in size;
All Moles which change their color and grow dark brown or black;
All Small Scaling Spots which grow thicker and scab or bleed easily;

All Scaling Warts, especially on the Lips, the Ears, the Eyelids, the Cheeks, or the Hands.

Hard places on the face and hands of old persons are sure to scale, but do not always become cancers; they are signals of danger, however. Cancer may occur in faulty glands of the skin, both sweat glands and fat glands, the fat glands particularly. When this occurs the glands change their usual function and scale away instead of forming fat or sweat. This makes them liable to break down and so become an explosive focus for a cancer. They do so quicker when they are irritated by picking with the fingers. The eyeglasses at the bridge of the nose are frequent sources of irritation resulting in cancer. The pipe, cigar and cigarette at the lip start the cancer of the lip, mouth and tongue.

Perhaps the most frequent excitant of all, so far as skin cancer is concerned, is dandruff. It falls from the scalp and lights on the ear, eyelids, nose, neck, lips and face, and if there is already a scaling spot, or a thickening, or a wart, a mole, or a gland ready to receive the dandruff scale, it sets this spot alive with activity and it goes on to form a skin cancer. Probably sixty per cent of skin cancers are due to this cause, and many a cancer has been prevented and may be prevented by curing the dandruff or by preventing it.

Common use of the hair brush spreads the disease, and for the prevention of cancer alone the Board of Health should forbid the hair brush in public places, and especially in barber shops and hair dressing establishments. In the household there is developing a better hygiene, and people are beginning to know that a hair brush should be personal, just as a tooth brush is. If no other idea than this danger of dandruff is carried home by this audience I shall be satisfied.

IV

THE EARLY SIGNS OF CANCER OF THE WOMB.*

By ERNEST S. LEWIS, B. Sc., M. D., New Orleans, La.

The subject assigned to me is of deep interest to women who furnish annually so many victims of this dread disease, attended with great suffering and horribly repulsive features. It is not surprising that many of them at the change of life are

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filled with apprehension, knowing that the toll of cases is greatest at that period.

I shall endeavor, as far as practicable, and with regard to the object of this symposium, to express myself in terms easy of comprehension by the lay members of this audience. At the same time I feel that to do justice to the subject, something more is required than a mere description of the early signs of cancer, which is the title of my paper in the program.

Whether cancer is on the increase by leaps or bounds, as one writer states, I do not know. His claim, and those who think with him, may have a "raison d'etre" in the increase of population and concentration of cases in hospitals, from which statistics *are* derived.

We know nothing of its nature or origin, but believe it to be local at first, with a tendency to spread to surrounding structures, and through blood and lymph channels to distant parts and organs. It then ceases to be local and becomes general. This emphasizes the importance of discovering it early. Two varieties of cancer affect the uterus; one from its vaginal aspect, the other from the interior lining of its cavity. Both are equally destructive and fatal. The first, more superficial and accessible to sight and touch, is more readily discovered. The other, arising within the cavity, and therefore concealed, is more insidious in its approach and development, and may progress considerably before being suspected, as its chief symptom, hemorrhage, is common to many other conditions. Whilst no age is exempt, it is more frequent between forty and fifty. Women who bear children are also much more liable than the sterile and single. This is due to injuries from childbirth, tears and contusions, coupled with degenerative changes incident to that period when the organs become functionally dead. Admitting the greatest frequency of childbearing women to cancer, can anything be done to lessen the percentage of cases? I claim that much can be accomplished. All external injuries are either corrected at once or within twenty-four hours after labor; those of the womb, from improper environment or imperfect asepsis, are deferred and later forgotten. Now these tears, predispose and lay the foundation for cancer, and are, therefore, more serious than the external. They should be attended to, if not

at the time of occurrence, at least in two or three months after labor. This should be a cardinal rule in obstetric practice.

Now let us consider the phenomena of the change, to correct a fixed popular error, and because of its relation to cancer.

The change is physiologic, and but for some functional nervous troubles not always present, is attended with no more disturbance, in an otherwise normal and healthy woman, than is observed in the establishment of menstruation at puberty. The belief that the change of life is associated with hemorrhage is absolutely unfounded, and a grave error for which innumerable lives have been sacrificed. Strange, but nevertheless true, there are medical men who entertain this view, otherwise it would be difficult to understand their indifference and failure to examine at once those who consult them for hemorrhage instead of months later, as I have been frequently told. Hemorrhage has no place among the natural phenomena of the change, though firmly ingrafted in the female mind; it is a deep-rooted legacy. Baer, in his analysis of 2,200 cases of uterine hemorrhage, finds that it belongs to the early years of greatest fecundity, and to any period of menstrual life, rather than to the change.

This summary of anatomico-physiologic data regarding the uterus in its relations to cancer, was deemed necessary; in fact, of prime importance, before calling your attention to the signs of the initial stage of this justly dreaded affection. These signs to a woman are purely objective as nothing is visible but hemorrhage, and vaginal discharge, which are not pathognomonic of cancer, as they occur in other conditions. In the skin and breast there is something tangible and manifest. In the case of the womb it is concealed; that is the pity of it; even the element of pain is wanting at first and only appears later in agonizing paroxysms. In an advanced stage the hemorrhage increases and also vaginal discharge, which, if offensive in character, denote breaking down and gangrene of the cancerous growth. How important, therefore, an early diognosis to the patient and to the surgeon, who knows that it is then and then only he can offer a reasonable hope of a permanent cure. Even then it is possible that some cancer cells may have escaped beyond the operating area, to be followed sooner or later by recurrence.

I do not wish to convey the impression that even in inoperable

cases hope should be abandoned, as there exists a possibility in a limited number of cases that however much of the womb is involved and destroyed, the disease has continued local through barriers set up by nature. These cases sometimes recover, whether treated by curetting followed by chemical caustics or potential cautery, showing in many instances no evidences of return after ten or fourteen years. This happy result cannot however be hoped for if cancer cells have wandered beyond the womb, no matter what treatment is used. Even radium, whose curative power is beyond doubt, in a strictly limited cancer, when a sufficient quantity is used, proves a failure, as stated by Delbet, with the collaboration of Moquot, Herrinschmidt and Mock in a report published in the "Bulletin of the French Association for the Study of Cancer" in the March number of 1914. It states: "What do we obtain from radium in inoperable cancer of the uterus?" Improvement is the rule, relief of pain, arrest of hemorrhage, suppression of discharge, destruction of the cancer, cicatrization followed by contraction of the vaginal fundus, but the cancer continues to develop. It does no more than other means employed. It does it, however, in a neater, less painful and less disagreeable way.

In the elaboration of this subject I have had a purpose. You have heard that there are no signs characteristic of cancer in its early stage. That hemorrhage and vaginal discharge occur in other conditions. They may even be wanting for some time after the invasion of cancer. I have also told you how nearly hopeless is all treatment in inoperable cases. I have done so to put you on your guard, and with a view to emphasize the importance of examinations two or three times a year when approaching or during the change of life, the most favored period for cancer.

I have sought also to impress you with the fact that uterine hemorrhage is always pathologic and calls for an investigation by a gynecologist.

V.

CANCER OF THE STOMACH.*

By DR. E. DENEGRE MARTIN, New Orleans, La.

LADIES AND GENTLEMEN: I have been asked to talk to you tonight on the question of cancer of the stomach. The subject

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allotted to me is the most difficult for the reason that it is not an easy matter to diagnose cancer of the stomach in its early stages, and by the time the diagnosis has been made, usually the disease is beyond hope of cure. We do know, however, that it is most likely to occur in people who have passed the middle age, and is usually preceded by so-called chronic indigestion, that is, by a more or less constant disturbance of the stomach. We know that a large percentage of these cases originate in ulcers of the stomach. Ulcers, however, are more likely to occur in the young than in the old, and can be cured by medical treatment, but cancer is purely a surgical disease. Stomach surgery is about thirty years old today, but in that time it has made rapid strides, and we are curing cases today that were at one time considered incurable. In fact, for many years it was considered purely a medical condition, but we know now that all cases of ulcers which do not yield to treatment in a reasonable time should be given surgical attention. To go into the symptoms of the diagnosis of cancer would be a subject too intricate for me to undertake, and would occupy much more time than is allotted to me this evening. I have simply this to say, that when you have reached the age of forty and are suffering from some digestive disturbance, I advise you to consult a physician, not one who will merely feel your pulse and look at your tongue and prescribe some proprietary medicine for digestion, for such a man is doing you a grave injustice, but consult one who is competent and will take the trouble of making a thorough and most careful examination. Cancer of the stomach stands third on the list today, and yet, in its incipiency, it is curable. Therefore, do not look upon it as a hopeless condition, but use every means at your command and have a diagnosis made while it is still curable. Cancer always originates in some lesion, that is, a tumor or scar. Therefore, if any of you have a lesion about you that God did not give you, have it removed, for by procrastinating you are simply flirting with the undertaker.

SYMPOSIUM ON CARCINOMA OF THE UTERUS.

I.

THE USE OF THE PERCY CAUTERIZATION AND INTERNAL ILIAC LIGATION, AS A PRELIMINARY STEP TO THE WERTHEIM HYSTERECTOMY.*

By S. M. D. CLARK, M. D., F. A. C. S.,
Professor of Gynecology and Clinical Obstetrics, Tulane University, New Orleans, La.

It was Byrne of Brooklyn who first called serious attention to the value of heat in the treatment of cervical carcinoma. His personal results were brilliant, but were never even approached by the host of others who attempted to emulate his work. The reason for this, I believe, was due to the fact that there was at the beginning no definite technical plan for the therapeutic application of heat, and each individual operator worked along different lines.

In 1912, Percy of Galesburg, Ill., supplied a clean-cut technic for the systematic application of heat in the treatment of cervical cancer. He devised the water-cooled speculum for protection of the vagina, a remarkably efficient electric cautery, and first made use of the hand in the abdomen in order to control the degree of heat from within. He based this work on experiments which revealed that it took over 112 degrees to kill cancer cells, whereas it required a temperature of 131 degrees or over, in order to destroy the cells of normal tissue.

While the value of heat in the treatment of cancer has been proven beyond question, it should not be utilized to the exclusion of other methods, which offer also distinct advantages. Heat alone cannot possibly accomplish the surprisingly good results obtained by combining it with extensive arterial ligation, followed, when possible, by total extirpation. My present general plan of treatment consists, therefore, not only in the use of heat alone, but in cauterization, ligation of both internal iliacs and one ovarian, and finally, Wertheim hysterectomy.

For the sake of convenience, we have divided our cancer cases into four groups.

GROUP ONE.

These include all cases that appear at once clearly favorable from the standpoint of a radical cure. Locally, the growth is

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small, the uterus is freely movable and there is no parametrial involvement. Subjectively there is no pain, the hemorrhage has been slight and altogether the patient is a good surgical risk.

This group is treated by Percy cauterization for twenty minutes, immediate preliminary internal iliac ligation, followed at the same sitting by Wertheim hysterectomy. The extra twenty minutes required for cauterization will not overtax these good surgical risks and has several points in its favor. The cauterization sterilizes the vagina and kills the superficial cancer cells, thereby diminishing the possibility of grafting and of peritonitis. Furthermore, the preliminary iliac ligation diminishes the amount of bleeding during extirpation to a remarkable degree.

GROUP TWO.

These comprise the borderline cases. Locally, there is a distinct cervical and vaginal vault involvement, though the uterus is still movable and there is no definite extension in the parametrium. Yet, on account of prolonged hemorrhages and toxemia, the hemoglobin is low and the patient's general condition is distinctly below par.

This type of case can be transformed from a very doubtful to an excellent surgical risk. Some of the most satisfactory results obtained have been in the cases belonging to this group. The plan of procedure in this instance is to cauterize thoroughly by the Percy method and while in the abdomen to control the heat, to ligate both internal iliacs and one ovarian. Such a case is then allowed two or three weeks before anything further is attempted. During this time it is gratifying to note the improvement that takes place. The hemorrhage and foul discharge cease promptly, the carcinomatous area diminishes appreciably in size, the blood picture improves, the patient gains weight and a general transformation occurs. This improvement, however, is but transitory, and at the end of the time indicated the Wertheim hysterectomy is performed. In two of my cases belonging to this group, after total extirpation, no cancer cells could be demonstrated by the microscope, though a number of sections were made from the parametrium, vaginal vault and what was left of the cervix.

GROUP THREE.

In this group are included all those cases that are clearly unfit for radical hysterectomy. The cervix shows extensive

involvement, extending below to the vaginal wall and above into the parametrium. The mobility of the uterus is distinctly impaired, pain is usually present, and the patient's condition is unfavorable from every standpoint.

This class of cases furnishes but little hope of permanent cure by means of ultimate total extirpation. There is no question, however, that they can be greatly benefited by internal iliac ligation and repeated Percy cauterizations.

A number of my cases in this group have been strikingly improved. Their lives have been prolonged and made comparatively comfortable, where, before treatment, they were bleeding constantly, distressed by a profuse, foul discharge, suffered considerably, with daily increasing abdominal pain, so that their very existence was made miserable from morning till night. Two of these cases improved to such extent that they are living today, after total extirpation, and give promise of remaining permanently cured.

GROUP FOUR.

We include in this class all those absolutely hopeless cases where the bladder and rectum are involved, with the usual attending complications. For these patients nothing whatever can be attempted. It is to be hoped that, as the development of early diagnosis progresses, this present large group will proportionately diminish.

While the plan of treatment which I have outlined here tonight has given us the most promising results, I am not blind to the fact that, for the present at least, we cannot allow ourselves to become over-enthusiastic. The work at present has been of too short duration to be able to speak of final results. But, while the problem of the treatment of cervical cancer remains in its present unsettled state, let each individual worker in the field attempt its solution, by whatever means have proven most efficient in his own personal experience. Then, after the necessary lapse of years, when the final reckoning comes, let us all adopt that method, which has proven, beyond a doubt, to surpass every one of the others.

II.

RADICAL OPERATION (WERTHEIM) FOR CARCINOMA OF THE UTERUS.*

By W. KOHLMANN, M. D., New Orleans, La.

Cancer, and particularly cancer of the uterus, has received general attention from surgeons, and especially gynecologists, in the past few years. Very little, though, has been accomplished regarding the ultimate cure of this disease, mainly due to the fact that an early diagnosis is not made and cases come for surgical relief too late for successful radical operation.

Reports from European countries show better end results and higher operability than in this country; most probably due to the more general education of the public on this subject, and probably, too, to the thorough education of the physician in this special line. But I think more yet could be gained by arousing the physician more thoroughly to the consciousness of this great responsibility.

There can be no doubt today that by removal of an early carcinomatous uterus the patient may not only temporarily but, in a good percentage of cases, be permanently cured.

A safe surgical procedure has been developed in the last decade which promises a high percentage of permanent cures with a low primary operative mortality—if cases are recognized and subjected to surgical treatment in early stage.

Vaginal hysterectomies of the carcinomatous uterus were first attempted in the early part of the last century. R. M. Langenbeck made a sub-peritoneal excision in 1813 and performed this operation three times afterwards. Sauter, in 1821, made a vaginal excision, after opening the anterior cul-de-sac, without using any special precautions against hemorrhage. Delpech loosened the cervix by the vaginal route and removed the uterus through the abdomen. Similar operations have been performed by a number of other surgeons, but the mortality was so high that the continued use of this surgical procedure was repudiated by most operators.

The merit of having laid down the fundamental principles of the abdominal hysterectomy is due W. A. Freund who, on

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January 30, 1878, made the first abdominal extirpation of a carcinomatous uterus in Trendelenburg's position. The patient, sixty-two years old, made a good recovery and was considered cured on the nineteenth day. She died from recurrence after one year.

The technic employed by Freund was the following: Emptying the bladder and rectum, irrigation of the carcinomatous uterus with a 10% solution of carbolic acid, removal of the broken down carcinomatous tissue by the aid of a sharp spoon and cauterization by heat, elevation of the patient so that the head was lower that the pelvis—Trendelenburg's position—opening of the abdominal cavity in the linea alba from the symphisis to the umbilicus, suture of the peritoneum to the skin. The intestines were covered and held back from the pelvis. A suture was passed through the body of the uterus from the anterior to the posterior surface, by means of which the uterus could be easily pulled upward. The broad ligaments were next tied off, first the tube to the ovarian ligament, then the ovarian ligament to the round ligament, and then the base of the broad ligament. The last suture was carried down from the round ligament through the anterior cul-de-sac into the vagina and from there back to the Douglas pouch. For this procedure he used a specially constructed needle. This is followed by a transverse incision of the peritoneum, the bladder is pushed off from the uterus by blunt dissection and the vagina opened. The same procedure is carried out on the posterior surface. Now follows the removal of the uterus from its attachments by means of scissors or knife. The sutures are carried into the vagina and the peritoneum closed by interrupted sutures. Irrigation of the pelvic cavity with carbolized water.

This method of operation, as recommended by Freund, was adopted soon by a number of surgeons, but on account of the high primary mortality (70-75%) was soon displaced by the vaginal extirpation. About the same time Czerny developed his method, to remove the uterus by the vaginal route (he performed his first operation August 8, 1878). This method came into great favor with most of the known operators at that time on account of the comparatively low mortality, about 30%. This mortality soon decreased to an average of about 8%.

Notwithstanding the low operability of the vaginal operation,

the frequent early local recurrence on one side, and on the other side the impossibility to operate in healthy tissue, to remove the broad ligaments and iliac glands, which soon were recognized as important factors in regard to the recurrence of the disease, soon proved the necessity for an improved technic of an extended abdominal operation.

Bardenheuer in 1881 advised vaginal drainage, which was a factor in reducing the mortality to about 33%. A new impetus was given in 1895 when Rumpf, Clark and Ries, independently of each other, insisted on the necessity of more extensive removal of the cellular tissue of the broad ligaments and the lymphatic tissue and glands, and demonstrated the possibility of a wide dissection of the pelvis and isolating of the ureters.

The persistent work of Wertheim (beginning in 1897), Dœderlein, Bumm, Proust and others developed an operative procedure which, though difficult in its performance and taxing the strength of the patient, can be regarded at the present time as safe as any abdominal operation performed for a serious abdominal disease. The mortality has gradually decreased from 20-30% to 10-12% and less. The last report of Bumm's clinic gives 60 cases in whom the broad ligaments were not at all, or only slightly, infiltrated, and showed only four deaths, or a mortality of 6.6%. Childe reports recently under twenty cases a primary mortality of 5.5%.

With the decrease of the primary mortality there could be noticed at the same time an increase in the operability and improvement in the end results of the operation.

Krœnig and Dœderlein report 20% cured.

Bumm, in 218 cases, of which 153 were operated, 26% cured.

Clark in 36 cases has five cases cured.

Wertheim, 800 operated cases, 42% cured, and if the patients who died are excluded—53.5%. If all cases are counted 20% cured.

Faure reports an operability of 70.83%.

Berkeley, London, 63% operability and 25.4% cured.

Bonney, 25.9% cured.

My own experience extends over a rather limited number of cases, forty-three in all.

1908-1909, Thirteen cases, rather advanced type, were

operated, of which three died, three were temporarily improved, six were free of symptoms for one or two years, one living.

1910, One case, which died two years after operation.

1911, Five cases: one died following the operation; one died eighteen months after operation; two living (nine months ago); one not located.

1912, One case, living (nine months ago).

1913, Ten cases: two died (primary mortality); one died one year after operation; one died four months after operation; one not located; three well.

1914, Eight cases: one primary mortality.

1915, Five cases: one primary mortality.

In the cases operated by me Bumm's technic was used with slight variations. The patient is prepared in the usual way for laparotomy. The abdominal walls are disinfected with benzin, or ether and iodin. The vaginal preparation varies with different operators, some, as Krœnig and Dœderlein, will not employ the method of curetting the breaking down parts of the cervix, as they fear dissemination of the carcinoma. Bumm advises curetting the breaking down carcinomatous tissue, cauterizing with the thermocautery and application of 5% solution of nitrate of silver to the vaginal mucous membrane, and packing of the vagina with antiseptic gauze.

In my own cases the breaking down tissue was curetted, cauterized by heat and the whole surface and vagina disinfected with alcohol and iodin, after which iodoform gauze was introduced into the vagina. The abdomen is opened by a median incision from the symphisis to the umbilicus. On account of the danger of soiling the cut edges of the wound with carcinomatous masses the wound is protected with towels or gauze pads. The intestines are held back by the same means, which prevents soiling at the same time.

A large abdominal retractor, preferably Stœckel's, is required to expose the field of operation as thoroughly as possible. The uterus is grasped with a blunt tumor forceps and drawn to the symphisis. The spermatic vessels on both sides are cut between two clamps and preferably tied at once. The broad ligaments are opened by an incision following the round ligaments and along the vesico-uterine fold of the peritoneum. The round ligaments are next cut and tied. Now follows the blunt dissec-

tion of the connective tissue of the broad ligaments with finger and forceps, exposing the deep vessels and ureter. The uterine vessels must be isolated crossing the ureter and can now be easily tied and divided. It was advised by Bumm to avoid the superior vesical artery on account of possible circulatory disturbance of the bladder mucosa, but Proust and Maurer have recently, International Medical Congress in London, advised to ligate the internal iliac and have observed no influence on the bladder. After the arteries are tied the ureters are dissected out down to the bladder.

Now comes the removal of the parametria as extensively as it is possible; the vagina is divided between clamps, or as that procedure is frequently not possible on account of adhesions in posterior cul-de-sac, the anterior wall is incised and then, with great care, on account of the rectum, the posterior wall, either with knife or pair of long scissors. The peritoneum of the bladder is attached to the anterior vaginal wall and the peritoneum covering the rectum to the posterior vaginal wall to stop bleeding and cover the open spaces with peritoneum. The open spaces of the broad ligaments are in the same way covered with peritoneum by suture.

If there is no bleeding drainage may be omitted, but in doubtful cases, or where raw surfaces are present which cannot be thoroughly covered, gauze drainage for a few days is indicated. Iodoform gauze is placed in the vagina to support the vaginal vault. The abdominal wound is closed in the usual manner.

III.

THE LIMITATIONS OF THE USE OF RADIUM IN CANCER OF THE UTERUS.*

By C. JEFF. MILLER, M. D., F. C. A. S., New Orleans.

Certain definite scientific knowledge has been obtained regarding the influence of radium on the cancer cell. It has been proven that it has the power of positively checking cell multiplication and that its action is greater on cells of malignant tumors than upon normal physiological cells.

Russ, of the Middlesex Hospital, Cancer Research Institution, states that he has satisfied himself that the power of radium

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emanations over the life-history of a cancer cell is twenty times as great as it is over the life-history of a leucocyte. He has also shown that the influence of radium upon the actual life and division of a cell is something direct and works without the intervention of other forces.

Its uses in the treatment of cancer must be based upon this specific action upon cancer cells and the greater resistance of the normal structures.

It is now fairly well-known just what histological changes take place under the influence of radium and, in order to be brief, I quote at length the condensed statement of Schmitz, who, in a recent exhasutive review, sums up the opinions of various authorities as follows:

"During the first three weeks a hyperemia and numerous typical and still-more pronounced atypical mitoses are found. Then follows the metamorphosis characterized by an enlargement and vacuolization of the cancer cells, retardation, and finally cessation of the division of cell nucleus, then destruction of the nucleus and cell protoplasm and finally destruction of the cells.

"There is a simultaneous new formation and increase of the connective tissue succeeded by a sclerosis and hyaline degeneration of the fibrillæ. On microscopical examination of a piece of tissue, a narrow zone of necrotic area of tissue is seen on the surface, beneath this a layer of granulation tissue and degenerating cancer cells, while in deeper tissues areas of apparently normal and degenerated cancer cells are seen.

"Whether these cells are capable of proliferation or are destined to perish cannot be proven on microscopic examination. The destroyed cancer tissue is replaced by granulating or sclerotic, hyaline degenerated connective tissue. The musculature atrophies and disappears almost entirely. The blood vessels show a hyaline degeneration of the adventitia and media. An obliteration of most of the blood vessels is caused by a proliferation of the intima.

"The changes in the blood vessels are considered by most authorities as of great importance, on account of the sudden disturbance of the nutrition of the tissues."

This statement expresses fairly accurately the action of radium upon which its therapeutic action is based.

We must acknowledge that its action, so far as it goes, produces the result desired in the treatment of malignant processes. Whether its intensity can be increased by the use of larger amounts of radium element, or by different methods of screening, or when combined with other agencies, is one of the problems of the future.

We can at least say that it has a definite action upon cancer cells, and that within a short time its place as a therapeutic agent will be definitely known.

It has been the fashion of late in some high quarters to unreservedly condemn radium and to even say unpleasant things about the intelligence and moral rectitude of those who use it. This spirit has been naturally prompted by our skepticism of new cures, and to a large extent, to some of the unfortunate notoriety it has attained. It is worthy of reflection, however, whether or not the surgeon who condemns without experience is not capable of doing as much harm as the enthusiast whose claim may be extravagant.

I wish to emphasize in the beginning that I am not overenthusiastic as to the virtues of radium. I have, however, faith in its virtues, and I use it because I have an ample proof that it is a most valuable adjunct in the management of cancer.

The results I have obtained have not altered in the slightest degree my belief that surgery offers the only proven cure for cancer in its early stages.

My belief in the radical operation for cancer of the uterus remains unshaken, but my ardor for extensive operation in advanced malignant processes is decidedly cooled. Those of you who have kept pace with the history of the technic of radical hysterectomy can recall very vididly the extravagant claims made as to its results and how these have been gradually modified.

The patient pays a frightful price for radical hysterectomy, when the primary mortality, the percentage of recurrence, the possible bowel, bladder and kidney complications are all tabulated, and there is just as much danger of bringing the radical operation into disrepute by employing it indiscriminately as will follow the application of radium without proper restrictions and accurate knowledge of its effects and risks.

After we have selected from one hundred cases of cancer the number suitable for radical operation, what is to be done with the remaining forty to sixty per cent that demand treatment? Many of these cannot be subjected to operation, often because of conditions apart from the cancer.

There are other arguments, if time permitted, to prove that radiation in some form has a decidedly large field in cancer management, but it is hardly necessary to introduce them here.

Radiation is being used by reputable, scientifically trained laboratory workers and clinicians who have produced ample proof that it has a place in our armamentarium and gives results that

are not produced by any other known medicament. If, therefore, it is used with discretion, without violating any of the already established facts of surgical or pathologic practice, what reason can be given for its wholesale condemnation? I believe that it can be definitely shown that in the light of recent results the surgeon is not justified in relying upon surgery alone in the treatment of a cancerous lesion any more than he can make an early diagnosis without the pathologists' assistance. He has in radium and the X-ray two of the most powerful agents for preparing a case for operation and in destroying, after operation, overlooked cells and indurable structures.

I have had the good fortune to witness a demonstration of specimens of cancer of the stomach, all of which has been histologically verified, by Prof. Aschaff, of Frieburg, which showed at autopsy that the original growths at the pylorus have been entirely cleared of cancer cells by the use of deep X-ray exposures. This left no doubt in my mind as to my duty in future cancer operations if the patient could employ the use of radium in deep structures and the X-ray properly administered when large areas should be radiated.

It is only fair to state just here that there should be no spirit of rivalry displayed between the exponents of the Roentgen ray and the users of radium. They should be used in conjunction, often quite in the same case, at the same time. That radium can be used in deep-seated growths to a better advantage than the X-ray no one can deny; that there is any specific qualitative difference between the clinical action of X-rays and radium is no longer questioned. The chief advantage of radium, however, lies in the fact that the gamma rays are far superior to the X-rays in the intensity of the penetrating action. This intensity is about forty times stronger than that of the hardest X-rays. Clinical results prove this, and the lesser intensity of the Rœntgen rays cannot be overcome by an increased duration of their application (Schmitz). Since the value of the intensity of radium emanation is universally admitted, and inasmuch as it can be easily introduced into cavities and deep structures without any risk whatever of affecting the tissues lying superficially to it, radium is given thereby a decided advantage over X-rays.

Radium is particularly adapted to the treatment of uterine cancer for this reason, and if we accept Pinch's statement of

its use at the London Radium Institute, it continues to yield the most gratifying results, and the effects of radium treatment in operable cases are far in advance of those obtained by any other known medical or surgical methods.

Since I am requested to speak from personal experience, I must admit here that I cannot give you any data of its use in operable cases. As I have already said, I prefer to operate on all cases that seem to justify it. My experience has been confined to all grades of hopeless, inoperable growths. I regret that I have not accurate notes of all the cases treated to present to you, but I can state fairly accurately what changes have been noted.

I have been able to control hemorrhage in every case, with but one exception; unless the infiltration has been very extensive pain has been promptly relieved. This is one of the most constant and surprising results of its application. I have been able to dispense with opiates within forty-eight hours after its application, and the putrid discharge often disappears as rapidly.

We often fail to appreciate that the septic feature of sloughing growths is the factor that rapidly reduces the patient rather than the extension of the cancer. It is most gratifying to witness the marked improvement in the general condition of the patient as soon as the sloughing subsides under radiation.

The primary action of radium in cancer is really beyond the hopes of its most enthusiastic exponents; if the end results would prove as satisfactory its value would be immeasurable.

These results have been accomplished in inoperable cases, without the use of the knife, anesthesia, curettage, or the actual cautery. This is a distinct advantage to cases that must go to the operating table one or many times with all the accompanying discomfort with the minimum of relief.

DISCUSSION.

DR. F. W. PARHAM: I have had no personal experience with the treatment as described by Dr. Clark, but have observed some of his work. I must say that I am decidedly impressed with its possibilities for good. The advantage of treatment by shutting off the circulation by ligature, and the application of a degree of heat, sufficient to destroy cancer cells and yet far below that likely to injure normal tissue, appeals strongly to me. I have had some experience in similar conditions in surgery of the mouth, in the area of distribution of the external carotid artery. Dawbarn wrote some years ago the Alvarenga prize essay in which he reports many cases benefited and some actually cured by the starvation method, accomplished by dissecting out the external carotids. I remember a striking case of my own, one of carcinoma of the tongue, inoperable at first. The external carotids were

tied. The tongue filled the mouth, presenting a foul mass that certainly defied any operative procedure. Six weeks later the tongue had so much improved that I was able to remove it at the hyoid bone, without having to ligate a single vessel.

As regards radium, I have little experience. In one case of cervical uterine carcinoma, decided by Dr. Miller and myself to be inoperable, distinct benefit was accomplished by twenty-two hour applications of radium several weeks apart. The disease was certainly held in abeyance and she was made very much more comfortable. What the ultimate result will be we are not in a position at present to predict. Certainly the temporary effect was most striking.

I believe that in radium we have an addition to our armamentarium of great value. With its first introduction some years ago I questioned very much its real value, thinking it would prove like so many other agents, introduced with much praise and promise, and when put to the test of time be shown to be of only apparent or questionable value. In this conclusion I was agreeably disappointed. Several cases in the last few years have forced me to take an interest in it. One case more striking than the others occurred last year. A young man with round cell carcinoma of the chest wall was operated by me with recurrence several months later. The growth, which was about six inches across, had been very thoroughly and widely removed, and the wound then treated with the cautery. A rush diagnosis was later confirmed by laboratory report. The recurrence which occurred in situ was rapid and extensive. He went to Baltimore and remained under treatment several weeks. Upon his return he reported to me for examination; the site of the growth was entirely healed and has remained so up to this time, nearly one year since the treatment.

Following this and other experiences I became convinced of the value of radium and was negotiating for a working quantity for myself when Dr. Miller kindly offered to associate me in the use of that which he had recently obtained. Since then I have had occasion to use it repeatedly and have obtained many highly satisfactory results. One very striking case was a woman near the menopause, with a sub-mucous fibroid; hemorrhages had been profuse and constant and she was extremely exsanguinated, being constantly confined to her bed with frequent fainting spells, pulse rapid and feeble, slight nausea and vomiting, hemoglobin 30%, clearly not a favorable case for operation.

In addition to these objective symptoms there was constant pain in the pelvis. I declined to operate but suggested radium. Three applications were made into the uterine cavity during a period of four days. After a few days all hemorrhage stopped and she began to recover quite rapidly from her exsanguination. Two additional intra-uterine applications were made later to make sure of our results. This has been several months ago and she has had no hemorrhage since. All pain in the pelvis ceased twenty-four hours after the first application. The uterus at the time the treatment was instituted was about as large as a four months' pregnancy; it is now about the size of a lemon.

The above results have been duplicated in other cases and I am yet to see a case of uterine hemorrhage which it will not control. In radium we have a potent agent of unquestionable value when intelligently used.

DR. E. S. LEWIS: My experience with inoperable cancer of the uterus is disappointing. In 1880 I wrote a paper on the treatment of such cases, by removing with curette, knife and scissors all diseased tissue and as much of healthy tissue as was possible, following this by packing the crater-like cavity resulting, with pledgets of cotton saturated with a 50 per cent. solution of chloride of zinc. General as well as local improvement was the rule. In a very few instances a permanent cure resulted. These were the rare exceptions, however, for in from a few months to three years the disease invariably returned. With Dr. Clark's application of the Percy method, I have no experience. It is certainly heroic and I hope from it a higher percentage of cures may be recorded. I must confess, however, to being very skeptical. I may say the same of the radium treatment. In a recent report to the French Association for the study of cancer by a committee composed of Messrs. Delbet, Herrinschmidt and Moquot, it was stated, after a thorough investigation, that radium accomplished no more than other methods of treatment. It may be interesting to the members of this association to know that the first vaginal hysterectomy for cancer of the uterus in this country was performed in New Orleans by Dr. Dubourg, Chief Surgeon of the Imperial Guard. He emigrated to New Orleans after the downfall of the first Napoleon. He reported three cases which were published in 1830. I gave this report to Dr. Engleman who was writing a history of hysterectomy.

DR. L. J. GENELLA: Some of the speakers tonight have laid special emphasis on some statistics that claim that the operative treatment of malignancy is better in Europe, in so far as cures are concerned, than it is in America. If this were true I do not believe such data have any bearing on surgical facts unless such averages of cures are correlated with the well-known low cancer incident of such countries. It is a well-known fact that countries that have a low cancer incidence have also a higher rate of cancer cures by almost any method. I believe that even if such master operators as the Mayos were to do their work in a high cancer incidence territory like Iceland, Japan or Greenland, that their per cent of cures

would reach a markedly lower level than it has in such a favorable soil as the Swedish settlement of Minnesota.

No subject is more inviting to the research worker than malignancy, but the present type of research work shall always be barren of results. This barreness is due to the fact that all research workers have their mono-etiologically-factor hobby and they usually blindly ride it to a barren end. The only theory I believe is tenable is to consider a malignant cell as an ostracized cell that has taken on an independent existence after it was ostracized by the other cells. This independent existence or fetus-like type was assumed to avoid the inevitable death that would otherwise have overtaken it after it was ostracized. The causative factor that causes ostracization may thus be infection, trauma or inherited properties. Think of any event that can cause a cell to lose its environmental correlation with normal cells, that will cause such normal cells to ostracize the damaged cells and such ostracized cells must at once either do one of three things: die, revert to normal and normal correlation or take on a self-supporting existence (fetal form of cell). Most cells die, a few revert to normal and a still fewer number are able to assume the fetal type.

DR. MAURICE J. GELPI: It has been my good fortune to be able to observe the cancer work which is now being done in Dr. Clark's clinic, and which is giving the surprisingly good results of which you heard him speak.

I have seen cases treated by means of superficial singeing with the Paquelin cautery; by the application of 50 per cent zinc chlorid paste; by a more thorough cauterization with the soldering irons; by means of intravenous infusions of colloidal copper; and finally, by the X-ray. Of all these things, the treatment by combined internal iliac ligation and Percy cauterization, is the one which up to the present time has given unquestionably the very best results.

The combined plan of treatment is correct not only from the practical, but from the theoretical standpoint as well. By working from below, applying the cautery at 120 degrees, you have the heat transmitted for about one or two inches in every direction. As a result of this you produce an immediate cancer cell death and a subsequent cancer cell starvation, due to thrombosis. By the ligation done from the abdominal side, you produce an immediate cell starvation plus the other results already enumerated by Dr. Clark. The full extent of this starvation can be appreciated, when you consider that in tying both internal iliacs and one ovarian, the circulation of twenty-five arterial trunks is immediately stopped. So that the plan of treatment advocated here tonight is attractive from the theoretical side, and, practically, gives excellent results.

DR. WILLIAM KOHLMANN: In the past three years I have combined X-ray with operations regularly, though I had used X-ray at times previously. I am of the opinion that X-ray has a decided beneficial influence in the after treatment of carcinoma of the uterus.

In regard to Percy's method of cauterization, I believe that the ligation of the internal iliacs and ovarian arteries will be a great help. In some cases though it may be rather difficult to ligate the internal iliac on the left side, as the sigmoid may reach low down and necessitate a more extensive dissection.

The reports of the effect of radium on carcinoma have been more satisfactory, especially recently. The influence seems to depend greatly on the quantity of radium used. Shauta of Vienna found by the use of 40 to 50 mg. rather an increase in the growth. After he was using larger doses his results have been better.

DR. H. W. KOSTMAYER: It is not as inappropriate for me to follow Dr. Lewis in the discussion as it might appear, for it was he who taught me my first steps in gynecology.

I rise principally to tell you that Dr. Clark is not alone in his enthusiasm for the new method of treating cervical carcinoma. Each and every member of his staff is just as enthusiastic and hopeful of ultimate brilliant results.

One great advantage of the Percy cauterization over radium, which was not mentioned, is the fact that radium makes more vascular and difficult later extirpation, whereas the cauterization and vascular ligation greatly facilitate total extirpation.

Dr. Couret said epidermoid cervical carcinoma is the more malignant. This may be true to the pathologist, but the glandular internal type is clinically more malignant because symptoms appear later in this type.

DR. J. F. OECHSNER: I would like to ask Dr. Clark why he left an ovarian artery unligated; it seems perfectly safe to ligate both ovarians, as hardly much could be expected from the one ovarian left.

DR. E. C. SAMUEL: Dr. Miller said that the gamma-ray had forty per cent more penetration than the hardest X-ray tube found. This was true up to about one year ago, when Mr. Coolidge announced his tube to the profession and which he claims gives us practically the same penetration as the gamma-ray. When Rœntgen announced the properties of the ray to the medical profession it was used for practically everything in medicine and surgery; it was in other words a cure-all.

The principal things that we have to pay attention to in X-ray treatment, especially the massive in deep therapy, is the dose that the skin receives. I think that the combination of radium and X-ray is the ideal method of treatment in all postoperative cases of malignancy. It is a well known fact when it comes to choosing between the two methods that some cases respond better to radium and some cases better to X-ray.

DR. S. M. D. CLARK (in closing): I think that ligation of the internal iliac arteries and one ovarian artery, combined with Percy cauterization, is a distinct step forward in the management of cervical carcinoma; but if it can be demonstrated that radium does the work, no one will be more ready and eager to accept it than I. The only way to determine the value of the methods now employed, is for each man to keep accurate records of his cases. At the end of a five-year period that method should be adopted which shows consistently the best results. Some day the specific cure will be found. In the interim we must use the means at our disposal to the best advantage. In this method we believe we have found the most satisfactory plan of treatment yet devised, and are hopeful that at the end of five years our statistics will demonstrate that it accomplishes more than we now assert.

CANCER OF THE LARYNX.*

By HOMER DUPUY, M. D., New Orleans, La.

The advisability and legitimacy of surgery in a region of the body where manifold and formidable dangers surround the operation itself must finally rest upon the answer given to the three following questions:

1st Is a permanent cure possible?

2d Can the risks of the operation *per se* be reduced?

3d. How much permanent disability will result from the operation?

When, in 1874, Billroth performed the first laryngectomy for cancer, the larynx from that date ceased to be a surgical "touch-me-not." While the death-toll from external operations about the larynx has been a heavy one, statistics bear witness to a markedly decreasing operative mortality rate.

Equally convincing and encouraging is the record as to the ultimate cure of laryngeal cancer following operation.

While we are lacking statistics in complete form, the medical press permits a summary from 1874, when the ultimate cures with operation were only 8%, to the year 1901, when the cures were passing the 66% mark.

Gluck's brilliant achievements show the following results: 35 hemilaryngectomies, 3 operative deaths; 22 total laryngectomies, 1 operative death.

Semon and Butlin summarize their results in thyroitomies for purely intrinsic cancer of the larynx as 85% of permanent cures, there being no recurrence within three years. Our own Crile has established a new standard in this country with a

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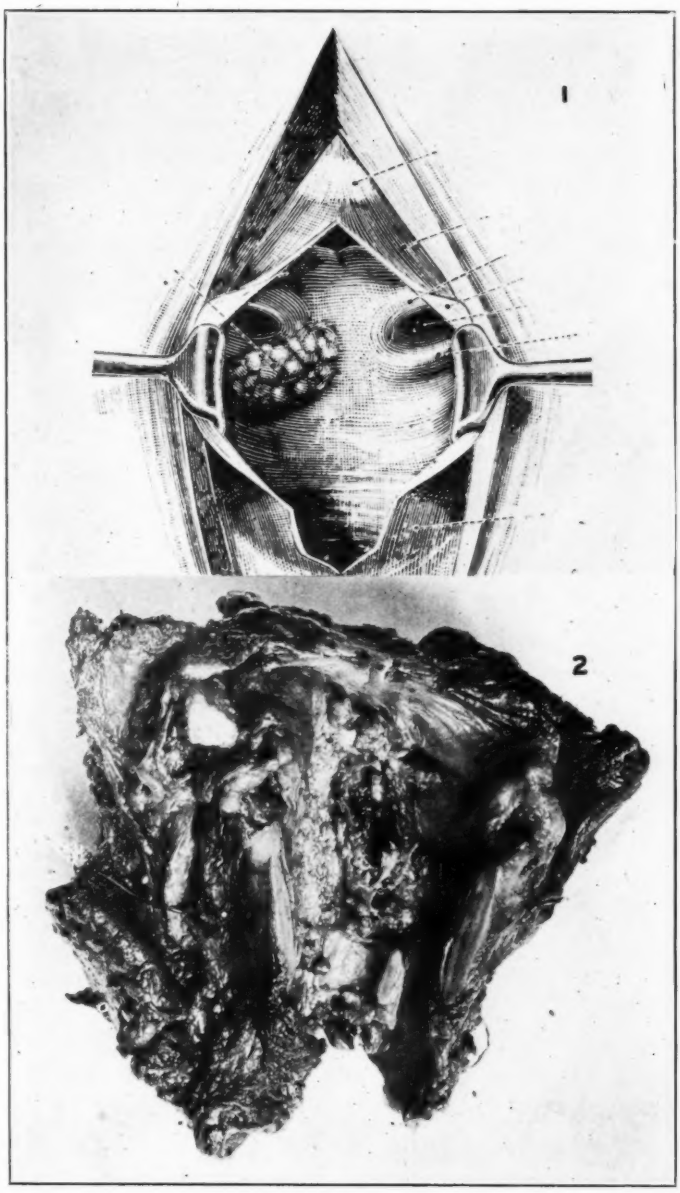
record of twenty-seven laryngectomies for cancer, with only two operative fatalities, a mortality rate of 7%. Surely, such records give encouragement and inspiration. While an improved surgical technic and a careful post-operative treatment has obtained, the division and recognition of two clinical types of laryngeal cancer is equally responsible for these splendid results. This classification into two clinical types, intrinsic and extrinsic, is not generally recognized. It is of practical importance to grasp the significance of such a division if we would fully realize the difference in the pathology of cancer as it originates in different parts of the larynx. Again, the recognition of these two forms makes early diagnosis imperative, as the intrinsic is both operable and curable, while the extrinsic still presents a gloomy outlook.

The intrinsic type includes cancer affecting the true vocal cords—the false vocal cords—and the ventricles. Its essential feature is that the growth in these positions remains for a long time within the cartilage box, showing no tendency to involve the outside framework of the larynx. Extended observations show that when the cancer is limited to these parts glandular infection and metastases are extremely rare and only occur as late developments. The one explanation for this extraordinary exemption from lymphatic involvement is the proven sparse lymphatic supply within the larynx. In the area described as intrinsic the lymphatic system, as is demonstrated by Sappy and Poirrier, is of meager proportions. This anatomical feature explains the feeble power of invading neighboring structures manifested by the intrinsic cancer.

In such an environment the growth may be said to be "in a safe deposit box." If the case is delivered over to a surgeon early enough, with our present improved operative technic, the intrinsic laryngeal cancer should prove the most curable cancer of the body.

In the extrinsic type the growth originates in the epiglottis, or in the region of the arytenoid, on its upper and posterior surfaces of the arytenoid cartilage. From these points dissemination through an abundant lymphatic supply to neighboring structures is rapid and extensive. Metastases subsequent to operation is the rule. This extrinsic form offers insuperable



1—Intrinsic cancer of larynx involving right false vocal chord.
2—Intrinsic cancer of larynx; become extrinsic by perforating wings of thyroid.

ILLUSTRATING CASE OF DR. DUPUY.

difficulties to surgery, and recurrence is more frequent than otherwise.

When intrinsic laryngeal cancer perforates the wings of the thyroid cartilage, it clinically and surgically enters into the extrinsic class.

It is evident that the cure, in a great measure, hinges on early diagnosis. While the cancer remains encapsuled in the larynx is the time to make a diagnosis. As the neoplasm usually first attacks the true vocal cords, hoarseness—in varying degrees —quickly follows. Hoarseness always needs a diagnosis. The cause of it, and its persistence, in subjects of the male sex past forty years, is sufficiently compelling to call for an early laryngoscopic verdict. True it is that at the onset some difficulties may beset us. In the absence of distinctly visible neoplastic tissue, and in the presence of mere infiltration, we will have to suspend judgment for a while. But in this region the highly suspicious features of unilateral tumefaction—early immobility of the cord affected—soon reveal themselves. At this stage the microscope affords little or no assistance. In more advanced cases, however, the microscope seldom negatives the clinical picture.

In its very incipiency the chief characteristics may be so ill defined that we are thus driven to differential diagnosis, and the two more frequent possibilities which confront us are tuberculosis and syphilis. The former is rarely, if ever, primary, and in arriving at a positive conclusion, the tuberculin test seems reliable.

Regarding syphilis, it must be emphasized that a luetic laryngeal lesion is a potential cancer. While the local lesion may disappear under appropriate treatment, the residual cancerous growth continues to advance. Herein lies the danger of too long deferring operative measures for the cancer in the hope of curing what is thought to be latent syphilis.

In extrinsic cancer the onset is insidious, and there is no hoarseness to warn us, while the dysphagia sets in when the disease is quite advanced.

With reference to benign growths and their recognition, the training and experience of the expert laryngologist usually affords security against mistaken diagnoses. I have seen a

tuberculoma—of postcommissure—simulate a papilloma. Refinements in diagnosis sometimes prove necessary.

The special regional dangers surrounding extensive operations about the larynx are:

1st. Pneumonia—due to inspiration of blood and inhalation of infected discharges from the wound.

2d. Mediastinal infections.

3d. Vagitis—caused by injury of the vagi during operation.

4th. Reflex inhibition of the heart and respiration through mechanical stimulation of the superior laryngeal nerve.

These are the obstacles that have blocked our path to complete success. We can, however, look with more hope into the future, as such master workers in the field as Gluck in Germany—Semon and Butlin in England—Brewer, Jackson and Crile in America—have, by a refinement of technic and scrupulous postoperative care, greatly minimized these ever-present risks.

Naturally, I have turned to our own records of the Charity Hospital. It must be admitted that they are not encouraging relative to surgery of the larynx for cancer. Dr. Matas, however, has one case to his credit deserving mention, a combined laryngectomy and partial pharyngotomy for a very unfavorable case of extrinsic cancer. The patient, with buccal whisper, was up and about for several months after the operation. He has left the hospital, and it is not known whether he is still living. One of my cases, a left hemilaryngectomy, was apparently cured for over one year, when a recurrence in the right half of the larynx caused a fatal issue. My last laryngectomy on a male subject, aged forty—poor general health—resulted in death in twenty-four hours after the operation from sudden cardiac failure. The discussion of this paper may bring out more fortunate results than is here recorded, from those who are interested in this field of surgery.

What is the price paid for the cure in permanent disability when laryngectomy is done? Unquestionably a very dear one. Artificial devices for the production of voice, all authorities agree, except Gluck, are at best unsatisfactory and impracticable. The mutilation is of such serious character that the patient alone must decide his fate when the question of operation is being discussed.

What is the last word in operative measures? Thyrotomy—

advocated and practiced by the English laryngologists, headed by Semon—is regarded by them as *the* operative procedure for all cases of *intrinsic cancer*. Opening the larynx in the median line certainly gives a wide exposure of the parts and makes it surgically possible to remove the entire growth when it is limited to the soft structures. While the growth is usually found to be more extensive than the laryngoscope had shown it to be, seldom, if an early diagnosis had been made—is it necessary to remove any of the cartilaginous framework. The statistics of the English laryngologists emphasize that in rigidly suitable cases thyrotomy, combined with tracheotomy, is a comparatively safe-operation. There is less mutilation and some voice is preserved when the disease is unilateral.

It is regretable that the selected cases suitable for thyrotomy are not presenting themselves in greater numbers. The cases, as we see them, are too advanced. Somebody is erring, somebody is delaying a much needed diagnosis. It does seem that thyrotomy is full of promise for the most frequent type of laryngeal cancer, the intrinsic. But it is not being given a chance to prove, perhaps, its superior merits over other more radical operations. So the pendulum in recent years is swinging over to complete laryngectomy, and this operation is becoming more and more highly specialized.

The ideal now aimed at is to safeguard the mediastinum, and pulmonary tract, by a preliminary operative procedure which strives to produce a strong barrier of granulation tissue around the larynx and trachea before final removal of the former. Briefly stated, this method of preoperative protection consists in the exposure by dissection of the upper trachea, the larynx, and the lateral planes of the neck. A low tracheotomy is then performed. It is expected that in about one week a sufficient amount of granulations will be produced to act as a defense against any infection extending across the base of the neck or into the thoracic cavity. A strong defensive mechanism will also be established in the mucous lining of the trachea, which will have to care for itself through an artificial opening. At the end of one week the larynx is removed by the usual technic.

This procedure, credited to Crile, promises to still further reduce the operative risks of laryngectomy. I had the privilege of seeing Dr. Matas perform this operation on a subject referred

to him from my service at the Charity Hospital. I have already referred to the case in another part of my paper. The case was not a suitable one, as the cancer extended from the larynx to surrounding structures. I was, however, greatly impressed with the possibilities of this method for the reduction of those life-destroying post-operative complications which seem to thwart the best efforts of some of the most skilled operators.

DISCUSSION.

DR. A. I. WEIL: The outlook in cancer of the larynx, from the patient's standpoint, has been greatly improved in the past few years. This is largely due to the introduction of the suspension laryngoscope of Killian, by means of which the patient can be suspended and a direct view had of the larynx. This greatly facilitates an early diagnosis, the sine qua non of successful treatment of cancer of the larynx. As large a piece as is necessary for complete microscopical diagnosis can be much more comfortably removed by this method than by the old indirect method; and it is possible to secure the tissue from the exact spot and in the exact amount desired. Nor is it necessary to wait weeks and months to rule out tuberculosis and syphilis.

A diagnosis of malignant disease having been made, the important question then arises, shall we attempt to remove the growth by means of a thyrotomy or shall we try for complete eradication by means of laryngectomy. My experience has been that a thyrotomy is never sure, and my preference is for the radical operation in spite of the increased risk and the resulting complete loss of voice. In the operation as at present performed, that is in steps as suggested by Crile, the risk of complications is lessened.

If the radical operation is rejected, I think as much can be accomplished with the suspension apparatus as by thyrotomy and with much less risk and discomfort to the patient.

DR. DUPUY (in closing): I did not intend in my paper to advocate either laryngectomy or thyrotomy. The brilliant results, however, reported by the English laryngologists with thyrotomy for strictly intrinsic laryngeal cancer warrants a more extended experience in this country ere we allow the pendulum to swing over entirely to that mutilating procedure—laryngectomy. Either method calls for early diagnosis. The burden of responsibility rests on the one who first sees the case. The laryngoscope is ready to make a diagnosis—and surgery, in the intrinsic type, is full of promise as to a permanent cure of laryngeal cancer.

EXPERIMENTAL AND VIVISECTIONAL RESEARCHES, WITH MINUTE CHEMICAL AND PATHOLOGICAL OBSERVATIONS.

When and How Does the Pre-cancerous State Become Cancerous?—Is It Stimulation, Degeneration or Regeneration?

By FREDERICK GAERTNER, A. M., M. D., LL. D., Etc., Pittsburg, Pa.

The production of cancer from a pre-cancerous lesion is more of an accident than a sequence. Its transformation is not a metamorphosis of the existing diseased tissues, but a supra-activated, aggressive process of its underlying highly stimulated normal tissue, due to loss of ferments to defend the underlying cells against foreign, or toxic protein products; in other words, an excess of pathologic, nitrogen lymph. This is backed up by the finding of an increase of non-coagulable nitrogen in the blood and an increase of colloidal nitrogen in the urine of cancer subjects—finally, cancer toxemia, and death is due to

uremic "nitrogen" poisoning. Recently the chemical studies of Rous' serum in chicken sarcoma has verified the excessive nitrogen infiltration.

Besides, I have clearly shown "vivisectionally" on animals the very beginning of mammary cancer; also demonstrated from human cancer "pathologically" that cancer cells can be transplanted, whereas normal cells, under like conditions, will not grow; this proved to be due to the cancer-plant carried "intrinsically" sufficient cancer stimuli, so do embolic masses in metastasis. Furthermore, the staining of cancer antemortemly by injecting coloring material into the subtumoral efferent vessels, and the production of cancer, artificially, by nitrogen stimulation, fully corroborate my assertions.

Pathologists and surgeons alike will bear me out that the very beginning of every cancerous growth is a local condition --whether caused by trauma or pre-cancerous lesion is immaterial—but decidedly more complicated and manifold than the mere cell proliferation, nor an atypical cell accumulation—neither the infiltration or invasion of young fibro-blasts, connective tissue cells, lymphatic cells, leucocytes and polymorphonuclear cells, even to the extent of regional lymphatic infiltrations; all this does not necessarily spell cancer, however; plus an obstruction, *i. e.*, engorged and disorganized lymph stagnations, which have lost all intrinsic oxidizing qualities, also robbed the proximal cell of its intra-cellular oxidizing activities, and necessarily changes its interstitial auto-intoxication to a histogenetic (biochemically morphosed), pathologic-nitrogen lymph. This has already been verified by noted European pathologists. I went one step further and demonstrated that the greater the density of its interstitial and intercellular tissue juices, the greater its endosmotic pressure, and the greater its concentration, the more frequent its particles remain inactive; but the greater its dilution, the more complete the disassociation of its particles and the greater the degree of ionization. In other words, if we withdraw the water to a minimum, the tissues become drier and the combustion of nitrogen increases; therefore, any alteration in endosmotic pressure through increase in density of the fluids of the interstitial tissue affects the volume and shape of the cells and especially its intracellular constituents.

It is an acknowledged fact that protoplasm (bio-protein, Muller) physiologically possesses assimilatory and osteogenetic properties of tissue regeneration. Its chemical base is nucleinic acid, which has a tendency of excreting large quantities of nitrogen and organic phosphorus.

The most recent research, having for its object to determine upon the problems of the ultimate vital actions in the formation of the blastoderm and protoplasmic nuclei, led us to the selection of nucleinic acid, and is endorsed by the ablest physiologists and embryologists. Mierscher, who discovered the nucleins and obtained a proteid substance extremely rich in phosphorus, regards the zoosperm as the prototype of the organized cell, and he succeeded in isolating from salmon roe an acid body presenting none of the reactions of proteid matter, viz: nucleinic acid —an organic, chemical compound, which, in combination with proteid, constitutes nuclein. Schmiedeberg (one of my teachers) established the formula of nucleinic acid, *i. e.*, containing 9.63 organic phosphorus, or C_{40} H_{54} N_{14} P_4 O_{27}. Loewi has scientifically demonstrated that from nucleinic acid with its large proportion of organized phosphorus are derived the primary elements of protoplasm, protagon, lecithin, neurin, spermin, cholin, etc., as end products, or dissimilation, *i. e.*, excreta, similar to Austin Flint's theory on the formation of cholesterin.

Van Noorden says: *"The intermate action of nucleinic acid is not of a chemical nature, in the literal sense of the term. It is rather an action by 'presence'—an example of catalytic force which constrains the cellular nucleus to carry out its duplicating process and awakens promptly and completely the physiological function of its nucleus."*

Danilevsky says: *"Nucleinic acid is, in fact, the specific ferment of normal cellular growth, the biosynthetine, or vital synthesis. Physiological chemistry and the ultra microscope prove its organo-plastic activity, its integrating power on the nuclear stroma, its incomparable influence in the multiplication of the morphological elements of the blood and nervous system by growth and segmentation of the nuclei. Lastly, the marked increase in the nitrogenous exchanges with the assured fixation of phosphorus in the tissues, with its consequence the regeneration of the hemoglobin."*

Physiologically, nucleinic acid is the basic principal of tissue

regeneration. It provides the young cells with the necessary pabulum "nucleins," and the old with intrinsic resistance, *i. e.*, osmotic tension; thereby maintains an interstitial equilibrium, *i. e.*, endosmotic pressure, with autolytic activities. It puts the leucocytes in a state of increased phagocytic activity (Gaucher and Barbier). Nucleinic acid is the active solvent of uric acid, and thereby accelerates the elimination of waste; that is to say, of preventing the reabsorption and waste of the most valuable of its intracellular elements, whereas a total loss of nucleinic acid necessarily changes its functional activity and reproductive regeneration to a pathological atrophy with diminished osmotic tension. However, an increased endosmotic pressure may also produce consequative atrophy; but, where the tissues are loose, flabby and highly vascularized lymphatically, like the mamma, skin and other excretory organs, it oftimes has the opposite effect, producing cell hypertrophy with degeneration, or proliferation from stimulation.

This pathologically elaborated nitrogen lymph in loco permeates and disorganizes the fixed body cells, also penetrates and stimulates the movable cells into hyper-activity, so that the cellular fixed elements by this time haye become denuded of intrinsic resistance, *i. e.*, nucleinic acid, thereby making room for an increased mineralization—endosmotically of accelerated gaseous exchanges, with diminished fat-splitting protective elements.

It is here where we find the missing link between the pre-cancerous stage and the cancerous state.

I will not take up your time in reciting the multitudinous pre-cancerous diseases and pre-cancerous lesions leading up to cancer. These have been most elaborately elucidated by Dr. J. Ewing in the *Medical Record* of December 5, 1914, and of other noted carcinomatologists; but still it remains for me to demonstrate scientifically the positive existence of "A Biochemical Cancer Stimulus" which is an excess of nitrogen in a highly toxic protein lymph menstruum and constitutes this increased interstitial density, *i. e.*, endosmotic pressure. *A priori*, this pathologic bridgment in the tissues can be verified by making accurate chemico-microscopical examinations. In nearly every pre-cancerous disease in which its base has already retrogressed cancerously, we find that the endothelium of the capillaries and

lymphatics have undergone proliferation and blocked the lumen of the vessels; further, find the environmental tissues both fixed and movable elements decidedly hyper-active with marked structural changes, *i. e.*, decidedly nourished by a positive quantum of toxic nitrogen lymph, highly alkaline, slightly edematous; *e. g.*, "the greater its toxicity and alkalinity, the greater its colloidal nitrogen stage, and the greater its malignancy." In other words, a growth cannot be pronounced cancerous until we find the characteristic cancer cells, and until we find the environmental toxinized lymph with its neoplastic lymph element infiltrations.

Cancer, like all tumors, originates from the interior of the pre-existing cells, muscle fiber, connective tissue, spindle shaped and round cells, even lymphocytes and leucocytes. All are concerned in the formation of tumors; *i. e.*, the result of intrinsic biochemical stimulations, and its type of malignancy may be determined by the amount of such pathologic stimulants which produces the greatest amount of retromorphosed endogenous tissues, and to what extent the peri and subtumoral masses are infiltrated with colloidal nitrogen lymph, neoplastic toxinized lymph elements, fibroblasts and necrosed cancer debris, *i. e.*, chromatin residues, cell remnants, nuclear and neo-protoplasmic fragments.

This colloidal nitrogen lymph, or cancer fluid, is not absorbable by the blood vessels, except only where necroses have already occurred (and this explains the finding of an increased per cent of colloidal nitrogen in the urine of cancerous subjects). Its composition is highly alkaline, with sodium and potassium salts predominating in a bio-nitrogenous glue-like menstruum. Sp. gr. 1045 to 1085; readily gives off nitrogen, whereas, in toto, it is neither absorbable, dissoluble, nor diffusible, but readily taken up by the dilated lymphatics, especially necrosed blood vessels, and it is my opinion that some of this colloidal nitrogen lymph must be carried along with the metastatic masses in order to form metastases. By injecting this same cancer liquid into the mamma of other non-cancerous animals, rats and mice, I can again produce the characteristic cancer cells.

Cancer cells are not born; neither are they produced directly from the normal cells; neither have they any function nor do they possess any intrinsic resistance; however, marked struc-

tural changes, with poly-typic and atypic proliferations, the contour and shape are largely influenced by increased endosmotic pressure—therefore, prone to absorb more readily than normal cells. It is admitted that cancer cells originally came from the fixed body cells, but they must pass through various successive stages of intracellular, morphological, retro-progressive developments, *i. e.*, from a karyakinetic segmentation to a proliferation, then from an abnormal irregular proliferation to a sprouting process.

The original normal cell, its reticular nucleus that directs and controls the activity of the cytoplasm, contains chromatin, plastin, nucleo-protein, calcium, phosphorus, iron, etc. The cytoplasmic reticulum fibers, continuous with those of the nucleus, are also composed of plastin and calcium. In the reticulum spaces, we have: first, ordinary proteins; second, nucleo-proteins with phosphoric acid; third, calcium combinations; and fourth, proteins in combinations with fatty acids, *i. e.*, lipo-proteins, the lipoids forming the cohesive cement of its intracellular constituents.

One of the most important aggressive, biological and pathological changes is brought about by this toxic hyper-nitrogen infiltration, producing a disorganization of its intracellular constituents, which are thrown into a chaotic upheaval, the nucleus shaken off its very foundation, followed by a marked deficiency, *i. e.*, loss of its intrinsic phosphorus and nucleinic acid, replaced with an increased alkalinity (sodium and potassium salts); *e. g.*, increased diffusibility, whereby a gradual obliteration of its recticulum and lipoids, structurally changed into a disordered nucleo-proteid catabolism—metamorphosed into a synthetic bio-nitrogenous neo-protoplasm. This is particularly noticeable nearest the cell wall, and is the first element that shoots through the already weakened and attenuated cell membrane (see Fig. 4 and 5), by which process the now semi-neo-plastic cellular elements become much enlarged, pale and finely granular, which is not due to degeneration, but to a "nitrogenous" regeneration. In some of the cells the nucleus was still preserved; in others the nuclei became very much enlarged, some scattered, but mostly subdivided, while others have the appearance of being distorted and situated eccentrically, and in many instances it was flattened out into a concave disc, closely applied to the inner cell wall,

which conclusively proved to be due to an over production of intracellular gaseous changes, whilst the cellular elements were in process of crenation, some in mitotic developments—other cellular elements rapidly retrogressed neoplastically, and many of them over-dilated from irregular gaseous vacuoles with pseudo-anaplastic formations, thereby formed into irregular sprouting neoplastic cell proliferation, even giant cells, into cancer colonies, besides a fibrillar network of coagulated lymph. In its meshes were lymph cells, degenerated and disintegrated lucocytes, chromatin residues, and other necrosed cellular debris.

In further advanced growths, I found that the semi-neoplastic cells which originally had as functions to secrete rapidly, became excretory, *i. e.*, cancerous, and were so changed and modified by its rapid proliferation, *e. g.*, intrinsic disorganization with increased osmotic tension, the further production of a most viruient toxic-nitrogen lymph, *i. e.*, endosmotically distinctly colloidal, which affected other cells in their immediate neighborhood. Even the young fibro-blasts, leucocytes, lymphoid; also the spindle shaped and connective tissue cells show increased neoplastic activity, and for that reason a neoplastic fibroid framework is built up *pari passu* with that of the multitudinous cancer cells. It is here where the style, type and form of cancer is moulded, and much depends upon the tissues in and from which it grows. In the mamma, where the loose, fatty and highly fibro-adenoid, with lymphoid, tissues exist, it is decidedly favorable for the invasion, infiltration and progression of the neoplastically stimulated movable cells, especally the young fibroblasts and connective tissue cells are here desperately hyperactive and invariably produce a scirrhus cancer.

Pre-cancerous diseases are not cancer; neither a benign tumor nor an inflammatory over-growth, nor ulceration, is cancer. Any of the above may lead to cancer, but the transformation is decidedly more intricate and complex than the mere changing of an abnormal typical tissue regression to an atypical proliferation. The underlying principle is in the production of a new foreign tissue, decidedly poly-typic and ana-plastic; *i. e.*, a regenerative, endogenous process, as in the old pathological tissues of an ulceration fissure, induration, wart-like hypertrophy, syphilitic lesion, or gumma, leucoplakia, inflammatory enlargement, cyst, or trauma; and in the skin, chronic eczematous patches, sebaceous

tumors, old ulcers, irritating (chronically) cracked lips, and abrasions of the alæ-nasi, especially scar tissue. All of these may precede cancer, but in themselves, like scar tissue, can never transform intrinsically into cancer cells; neither can degenerated nor infiltratd cells become cancer cells, but the pathologically enlarged and diseased tissues and cells must help to convert the underlying protective ferments into a nitrogenous toxic protein product, and as long as the lymph with its circulation has sufficient resisting powers to physiologize with nucleins, the tissue cells, especially endothelium, epithelium, etc., in their growth, repair and functional activities, and especially to collect and carry off tissue waste, cancer can never develop. Should, however, the lymph become pathologic, *i. e.*, stagnant and infiltrated with larger quantities of disorganized tissue, waste, urea and sugar, the result of fermentation and decomposition, with Sp. Gr. of ·1045 to 1085—within the already engorged and obstructed lymph spaces and capillaries, superinduced by extra pressure from a pre-cancerous lesion, or other pathologic destructive tissue changes, such as mechanical obstructive indurations, fibrous bands, lacerations, old adhesions, also infarctions, organic-metastatic emboli, even inorganic metastases and syphilitic-infiltrated, penetrating gummata, especially chronic irritations due to congestive, inflammatory cicatrizial tissue infiltrations, cancer may be formed.

This explains the frequent finding of an adenocarcinomatous base in pre-cancerous lesions, *i. e.*, ulcerations, etc., of the stomach and bowels; also the subtumoral neoplastic infiltrations of a benign tumor, and especially the extraordinary proliferating powers of the toxic lymph elements along the peri- and subtumoral masses and peripheral lymph spaces of pre-cancerous diseases.

I have seen a number of cancers of the male breast where its base had undergone suppuration with large abscess formation; then by artificial evacuation a complete and permanent cure was affected. This corroborates two vital points: first, cancer is purely a lymph process. It is started within the lymph spaces and capillaries, nourished by an intoxicated alkalinized lymph, carried and metastasized within colloidal nitrogenous lymph masses. It can never originate in tissues minus lymphatics, nor develop where the lymphatics have been obliterated, but the

more abundantly the tissues are supplied with lymph spaces and capillaries, the more frequent cancer develops. Second: Cancer can never develop in an acid medium.

One of the principal reasons why primary cancer of the kidneys and stomach is rare is on account of the mucous and submucosal tissues being strongly acid, with the exception of its "pylorus," this anatomic "traumatically" exposed tract being well supplied with blood, and decidedly so with lymph and lymphatics. Before primary cancer can develop itself in the above organs, certain gross pathological tissue changes must long have pre-existed, even prior to the pre-cancerous state, such as chronic inflammatory indurations, with necrosis and ulceration, *i. e.*, diminished acidity. However, the finding of certain fatty acids in the outlying districts of cancer of the intestinal tract, also of bone, which cause a decalcification of the latter prior to cancer infiltrations, is due to intracellular destructive changes in which lipoids and nucleinic acid were displaced by increased alkalinity, which either neutralizes the fatty acids or increases them interstitially, through intercellular and interstitial nitrogenized alkaline accumulations, pushes the fatty acids to one side, and further concentrates this toxic lymph into a colloidal nitrogen lymph, which, on account of its intense cohesiveness, intrinsically, heavier in specific gravity and less volatile, is retained within the immediate proximity of the new growth, and thereby supplies an increased amount of cancer lymph.

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N. O. Medical and Surgical Journal

Editorial Department.

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CANCER.

The propaganda for the knowledge of cancer will receive an enormous support with the July publication of many medical journals in this country. The American Society for the Control of Cancer is responsible for this campaign and this beginning should start a widespread interest in the subject.

The problem in cancer control is of far more importance than cancer cure, for the cure of cancer has been under way a long time. It is the exceptional case of cancer which is not remediable and the means of cure is increasing all the time.

The ignorance of the early stages of cancer and of the predisposing influences has been most responsible for so many bad cases. While the interest of the public is paramount and the education of the public highly important, we are minded to express the belief that the education of the rank and file of the profession is supremely urgent as the general practitioner has it in his hands to fix an early clinical diagnosis of cancer; the control can easily follow, and a cure may be anticipated with early precaution.

It is interesting to observe the wide discussion in cancer therapy, the surgeon on the one hand and the radio-therapist on the other—sometimes not meeting on any common ground.

The very differences in opinion augur an ultimate good, for there must be some cases where the surgeon has no place as there are other cases in which radio-therapy can serve no purpose. The wiser surgeons are beginning to compromise, directing a post-operative X-ray treatment as a means of assuring success in the end results or of, at the worst, minimizing the likelihood of recurrence.

It is too soon to have any arbitrary opinions on either radium or X-ray; even those expert in the use of these agents have modified convictions and it will require a better technic and a wider experience to prove results. Anyone, however, who reads the current reports, must gather the information that radium does well in selected cases and that the X-ray has retrieved the surgeon's failure more than once.

The pathologist occupies a secondary place, just now. Not in the importance of his relation to cancer control, but in the relative importance given him in the discussion. It is the clinical picture and the therapy which are in the limelight, even if the pathologist is so necessary to prove a diagnosis and to prognosticate the final result.

Anyway, it is a spiritual compensation and relief to think that, while so much of the world is at the throats of its neighbors, we in America can find time and occasion to go on with the battle against natural enemies, even though they are so morbid as cancer types.

Such militant forces in our civilization need to be controlled and the medical profession once more is in the fight, bound to conquer in the end, for with yellow fever, hookworm, plague, typhus,

cholera, and malaria already in the list of controlable diseases, we have only to go on fighting to finally relegate tuberculosis, cancer and syphilis also.

Cancer in New England.—Cancer is unusually high in mortality in New England as compared with other groups of states. Te relatively larger proportion of old people is held responsible. The death rate for cancer in the rgistration area of the United States for 1913 was 78.9 per 100,000. Connecticut showed 85.1; Vermont, 111.7; Maine, 107.5; New Hampshire, 104.4; Massachusetts, 101.4; Rode Island, 93.3. This means that 6,817 people died of cancer in New England in 1913.

New England has been awakened to the importance of this condition and the health authorities have begun active propaganda in general education for the prevention of cancer. Public meetings have been arranged and in several ways the dangers will be brought to the people.

Misrellany

WHY WE SHOULD HAVE A WAR AGAINST CANCER

(From the Commission on Cancer of the Medical Society of the State of Pennsylvania.)

It is a fact that cancer kills about 75,000 people in the United States every year. Any disease which causes such a high annual toll should command the careful attention of the Government, the medical profession, and the people. The need for this careful attention is all the more imperative if both the morbidity and mortality can be very largely reduced by co-operation on the part of these three forces, i. e., the Government, its people, and their physicians.

The reduction that has been caused in tuberculosis is now a matter of history. There can be no doubt that similar well-directed and persistent activity would cause a similar effect in cancer.

The key to the reduction of cancer mortality lies precisely in this: That cancer always begins as a purely local disease involving a strictly limited area. Second, that this limited area is accessible in about four-fifths of all cases; and third, and most important, a commencing cancer practically always indicates its

presence when it is still in its early, locally limited, and permanently curable stage. In other words, the enemy that we have to fight is not the cancer, but the delay. Nearly 60,000 of our people die every year, not because they have cancer, but because they have waited till the cancer became incurable.

The causes for delay are, first, that the people know little or nothing about cancer. The layman or laywoman does not know that certain evident signs and symptoms mean that cancer is insidiously creeping on them and will be fatal unless recognized and checked in time. So that a large proportion of our 60,000 unnecessary cancer deaths occur because the people do not know. If a woman has a right to kill another human being to save her own life when attacked, how much more has she the right to know that a fatal disease has begun its attack on her? A woman who loses her life at forty simply because she never knew that irregular vaginal bleedings indicated the presence of a cancer while it was in its early curable stage certainly has not had her fair chance at the hands of civilization. If our people are dying because they do not know, we, the doctors, must teach them. We must teach women that a lump in the breast, no matter how small or how painless, may be the starting point of a serious condition and must at once be investigated by a competent physician. We must teach women that irregular vaginal bleeding, the onset of a discharge, etc., may be early warning symptoms of cancer of the uterus. We must teach all people that a mole or a wart which begins to grow, bleed, or ulcerate, is a danger sign that must be heeded at once. There are similar early signs in other portions of the body that may forewarn people, and of which they should have accurate knowledge.

There is also a great field in the conditions marked by chronic irritation and the so-called precancer lesions. Recent statistics show that in about 40% of cases the cancer, the malignant disease, was preceded by long-continued simple diseases or by some form of chronic irritation. In other words, a large proportion of cancerous people need not have had the disease at all if they had been forewarned and had their precancerous condition cured.

The second great problem lies with us as medical men. Are we as active in the treatment of precancerous diseases as we should be, or do we only too often put our patients off with some

placebo and advise them not to worry? Do we always insist on a thorough examination when a patient comes to us with symptoms that may mean cancer? When an early cancer is present, do we always lay proper emphasis on the necessity for proper treatment at once? Do we not too often advise the one course which can yield to disaster and tell our patients to wait and see what develops, i. e., wait till the cancer becomes inoperable? Unfortunately at the present time these questions must be answered to our disadvantage. A recent extensive investigation has shown that on an average the family physician has had his cases of cancer under observation for about a year before they come to a real attempt to cure the disease. Our attitude to cancer needs to undergo a radical change. The average of one year's observation must be cut down to a few weeks, or, best, to a few days. Immediate attention to the precancerous condition, counsel in the doubtful cases, and immediate action in the positive cases, is the only proper service we can give our patients. To do this, we need a campaign amongst ourselves, too. A new and more efficient spirit must be created which will result in constant watchfulness to keep our patients from swelling the thousands of untimely and unnecessary deaths from cancer.

To arouse the profession fully to the necessities in the war against cancer, a movement has been started by which, during the present few months, State and County Societies all over the country are devoting special meetings to the study of cancer, and in addition, the vast combined influence of American medical journalism has been enlisted, and some forty odd medical journals are providing special cancer numbers. It would seem from the number of journals co-operating that the message must be brought directly to every medical man. We are sure that in this way the interest of the medical profession will be aroused for years to come, and we are sure that the time will be soon at hand when no blame for participation in the fatal delay can ever be laid at the door of an American physician.

The Treatment of Cancer with Autolysates.—Tukenbein (*Munch, med. Woch.*, 1914, lxi, 18) reports remarkable improvement in 15 cases of inoperable cancer following intravenous injection of an autolysate derived from the patient's own tumor. One marked advantage of the treatment is that it acts on both the

primary and the metastatic tumors. The most marked benefit was a prompt and marked relief from pain; this relief was very marked in one case, the pains subsiding in a few hours after intravenous injection of the autolysate, although the pain had previously resisted the acttion of morphin. The author reports the cases in detail, and it is noticeable that the cases influenced by the treatment were benefited in one or two weeks.

Spinal Decompression in Meningomyelitis:—(*Journal of Nervous and Mental Diseases;* Vol. 42, No. 1).—Taylor and Stephenson, as a result of their operative experiences in meningomyelitis, conclude:

1. Selected cases of meningomyelitis are susceptible to surgical treatment, where the findings indicate the segmental level.

2. This treatment should consist in laminectomy, free opening of the dura, and probably incision into the posterior columns of the cord, especially in those cases showing marked infiltration and swelling of the cord.

3. This operation, properly performed, adds very little to the jeopardy of the patient, but, on the contrary, seems to greatly diminish the period of convalescence and to lead to a more nearly normal return of function in the cord than is usual in these cases when treated expectantly. Many surgeons have demonstrated that laminectomy is not a very dangerous operation.

4. Decompression probably acts favorably by causing freer circulation, with the more rapid absorption of the inflammatory exudate. Incision of the cord probably facilitates drainage.

5. The small risk inherent in laminectomy, and the great advantage likely to accrue to the patient, argue much in favor of the surgical treatment of these cases. The same facts also argue for the earlier employment of exploratory laminectomy in most spinal cases where the diagnosis is not perfectly clear, but where the symptoms point to some cord level as the seat of trouble.

A Report of the Treatment of Cerebrospinal Syphilis by Intra-spinous Injections of Salvarsanized Serum.

Rytina and Judd conclude as the result of their limited experience, as follows:

1. Intraspinous injection of salvarsanized serum, with proper precautions, is a safe treatment.

2. The results obtained indicate its superiority over the older known methods.

3. Treatment must be persisted in until the laboratory findings are negative irrespective of the clinical progress observed.

4. Such clinical and laboratory improvements as have been observed by us have still to go further. The permanency of the improvement still has to be determined.—(*The American Journal of The Medical Sciences.*—Vol. cxlix—No. 2.)

Effect of Intravenous and Intraspinal Treatments on Cerebro-Spinal Syphilis.—(*The Archives of Internal Medicine,* Vol. 15, No. 1).—Draper summarizes the results of his observations on these forms of treatment as follows:

Clinically very marked improvement occurs in all groups of cases. In the spinal types pain is usually relieved; ataxia helped in most instances, and not very markedly in a few. The bulbar types and those with fairly pronounced psychic disturbances, depending perhaps on meningeal irritation, show marked improvement in symptoms as well as in spinal fluid. The more definite psychic disturbances also may clear up completely, but their spinal fluids cannot in every case be brought to normal. The cell-count has almost always been reduced in them, but the Wassermann test rarely disappears below 0.3 c. c.

In some cases, especially those treated with serum salvarsanized in vitro, transient numbness in the feet has appeared; in other cases a slight failing in general robustness, which may be an arsenic effect; and in several instances rather severe pains following the intraspinal injection have been seen. In two cases (76 and 96) there has been a sudden increase in ataxia following a period of definite improvement.

Notwithstanding these undesirable features, the improvement in symptoms in almost all cases is of such striking nature that the method should be given a most careful and thorough study by numerous observers. It is, however, a procedure which must be carried out with the greatest attention to the detail of technic in all its steps, otherwise serious symptoms may be induced. At present there is sufficient evidence to show that it is unsafe to give more than two, or at most three, consecutive injections of serum to which salvarsan has been added directly. In no case should more than 0.005 gm. be added. On the other hand, apparently any

number of intraspinal injections may be given with impunity when serum salvarsanized in vivo is used.

In those cases which do well the rapid and satisfactory improvement may lead to a premature cessation of treatment. For the elaborateness of the procedure arouses an impulse on the part both of patient and physician to curtail the number of treatments. But with our present knowledge of the significance of syphilitic serological reactions, so long as the spinal fluid or blood gives a positive Wassermann test, the case may be looked on as one potentially capable of relapse. Consequently, no matter how well the patient feels and seems to be, treatment must be continued unremittingly until the laboratory tests are persistently negative.

FIBROLYSIN IN NEURALGIA.—In *"Practical Medicine,"* of Delhi, India, December, 1914, Dr. James Third has an interesting article on the treatment of sciatica and other neuralgias with fibrolysin.

Sciatica is one of the most obstinate, as well as painful, affections that the physician is called on to treat. It is usually a localized interstitial neuritis; that is, involving the connective tissue and blood vessels. Parenchymatous neuritis is, as a rule, of toxic origin, such as are found in diphtheria, alcoholism and lead intoxication. It was in the interstitial form that Dr. Third employed fibrolysin, though it is possible that it may do good in the other form. Some cases of sciatica are neuralgic in character, and it is at times difficult at first to differentiate between neuritis and neuralgia. If the tendo achillis jerk be absent, the condition may be regarded as a neuritis. In Dr. Third's acute cases, the ankle-jerk was present, but less active than the normal. The "reaction of degeneration," on which dependence is placed in other forms of neuritis, may be absent here, especially in the earlier stages of the affection. When muscular atrophy is marked, the diagnosis is clear.

Dr. Third puts his patients to bed for a week or more, and applies extension to the affected limb. The medicinal treatment consists of injections into the nerve of 2.3 c.c. of fibrolysin on alternate days. He has tried other solutions in sciatica, but he has had the best results from fibrolysin. He strongly cautions against the use of alcohol injections into the sciatic nerve, on account of the alarming paralysis that sometimes follows its use.

Mode of Injection: The position of the patient is immaterial.

In an acute case, the patient is in bed, of course. When the patient is walking about, the best way to proceed is as follows: the patient stands with one hand resting on the back of a chair, knee semi-flexed, toes against the hollow of the opposite foot, heel raised about three inches from the floor. Find a point midway between the tuber ischii and the great trochanter. Wet a brush with tincture of iodin, and draw a line upwards and downwards from this point along the course of the nerve for about two inches. Disinfect the central part with iodin.

The syringe should be large enough to hold the entire dose. The needle should be three inches in length, and not much larger than the ordinary hypodermic needle. Strict asepsis should be observed. With a needle of this size local anesthesia is hardly necessary. The needle should be passed in at the selected spot for about one and a half to two and a half inches. The moment the nerve is punctured the patient will complain of a tingling sensation down the limb. Should the nerve not be reached on the first attempt, the needle should be withdrawn a little, and moved gently from side to side. As soon as the patient experiences the tingling sensation, the contents of the syringe should be slowly discharged. There is usually severe pain, but it does not last more than a few minutes. The injections are made every other day.

Altogether, thirteen cases have been treated by the above method, with gratifying results.

In one case of infraorbital neuralgia in a robust woman of forty-five, the fibrolysin was injected into the infraorbital canal. Within an hour the cheek was black and so swollen that the eye was closed, due to puncture of the accompanying blood vessels. The swelling subsided in a few days, but the neuralgia was cured, for there had been no recurrence for five months. McSHANE.

RESECTIONS AND EXCLUSIONS—INTESTINES—OPERATIVE TREATMENT (Oppel. *Annals of Surgery*, Oct. 1914). "Resections of the stomach when combined with those of the colon end fatally." Cases of cancer which would require such operation as above are considered by Oppel as inoperable.

Treatment of megacolon (congenital) consists of coloplication, colofixation, artificial anus, entero-anastamosis, and resection of sigmoid.

Treatment of Ulcerative Colitis: Colostomy, ileosigmoidostomy and resection.

Treatment of Carcinoma: Resection, entero-anastomosis, artificial anus.

Oppel states that in order to cure a fecal fistula of the large intestine by means of an anastomosis, it is necessary to do a complete *bilateral* exclusion. He further states extensive unilateral exclusions are insufficient because the contents of the bowels return through the large intestine to the fistula. Cases are cited and illustrations shown. Ileosigmoidostomy does not therefore cure a fistula of the colon because of the reverse peristalsis. Even in the absence of fistula this antiperistaltic wave goes on and the excluded gut acts as a cul-de-sac, which gives trouble. "Whatever we do, whether a complete bilateral exclusion or a resection of the large intestine we should as far as possible avoid the formation of cul-de-sacs. Should we on purpose desire to perform *ileocolostomy, then such exclusion* should be combined with *a fistula* at the *top* of the *cul-de-sac.*

Enteroanastomosis not applicable as a method of treatment in fecal fistula and colitis (Oppel).

Sigmoidorectostomy cured 5 out of 7 cases.

Every *bilateral* exclusion of large intestines must be accompanied by the establishment of a fistula of the excluded portion of the gut.

Three types of artificial intestinal fistulæ:

(1) Mucous fistula.
(2) Fecal fistula.
(3) Artificial anus.

Mucous fistulæ are the direct result of exclusion. They are all of two types: (a) temporary; (b) permanent.

Temporary when the excluded gut can be resected; Permanent where no resection can be undertaken, as in neglected cancers, tuberculosis and actinomycosis.

Fecal fistulæ ought always to be temporary.

Two types of fecal fistulæ:

(1) Auxiliary, established at the end of the cul-de-sac in unilateral exclusion.

(2) Self-existent, made with the object of treating colitis, etc.

Appendecostomy should be limited to the treatment of severe ulcerative colitis cases. Oppel thinks well of appendecostomy.

Oppel advocates cecoplication in conjunction with appendectomy. Oppel expresses the belief that many cases of appendicitis are the expression of colitis and therefore great good might come from appendecostomies.

Appendecostomy does not put the large intestine into a state of inactivity, not even when combined with ileosigmoidostomy, thereore Oppel concludes when it is desirable to give rest to the gut an artificial anus is the only means at our command. Right or left sided artificial anus is done, depending on where the trouble is.

In colitis operative measures are indicated only when the patient resists all forms of medical measures.

Indications for Artificial Anus.

(1) Immobilization of large bowel.

(2) As a preliminary step to resection of rectum.

(3) When signs of obstruction begin to appear, especially in malignant disease.

Resection of Large Intestine.

(1) Congenital megacolon.

(2) Benign and malignant new growths.

(3) Volvulus.

(4) Colitis.

Resection of the colon does not in the least affect the patient. Patients with malignant condition bear resection poorly, those with non-malignant conditions stand the operations well.

Oppel: 10 non-malignant .....1 death.
6 malignant .....3 deaths.

Oppel advises 2 step operations in malignant disease.

One step operation mortality 29 per cent.

Two step operation mortality 16 per cent.

Quoted by Oppel (Finkelstein).

Oppel uses lateral anastomosis—when uniting ends of colon he cuts meso-colon-purse strings ends. No buttons are used.

ISIDORE COHN.

STATUS LYMPHATICUS. Dr. Thursfield (*Brit. Jour. Child Dis.*, Nov. 14). In a discussion of the causes of sudden death in children reviews the literature rather thoroughly and concludes that the condition of status lymphaticus is not merely a disorder of the

thymus, but a much more complicated disorder of the whole "ductless gland" system.

Paltauf's hypothesis concerning status lymphaticus,—a constitutional disorder manifested by a hypertrophy of all the lymphatic structures of the body, including the thymus gland, has had many critics as well as many supporters. First the question of what is to be considered the normal weight of the thymus is the subject of much controversy. Many authorities put the normal weight at 25 grm., others at 40 grm., while Dr. Thursfield considers that any thymus which exceeds 10 or 12 grams during the first two years of life, is abnormal. It may be added that this latter view is more in accord with American investigators.

That pressure from an enlarged thymus may be the real cause of the symptoms in "lymphatism" is vouched for by many good authorities, but cases of this so-called thymic dyspnea, according to Dr. Thursfield, are extremely rare.

While there is a great deal yet to be learned concrning status lymphaticus, th fact remains that many sudden deaths are closely associated with this mysterious condition. Dr. Thursfield, therefore, emphasizes the importance of making an early diagnosis if possible before subjecting the patients to operations, etc.

According to Dr. Thursfield lymphoid hyperplasia, an increased area of dulness over the manubrium sterni, X-ray, together with the physical signs on unexplained attacks of dyspnea, a persistent low vitality, and intolerance of exertion are important factors in making a diagnosis of the conditions.

Pituitrin, an extract which has the extraordinary effect in obviating the results of shock, is recommended under treatment.

D. P. West.

The Vaccin Treatment of Scarlet Fever. (Donald MacIntyre, *Brit. Jour. Child. Dis.*, Nov. 14). Comparing a hundred cases of scarlet fever admitted to Plaistow Hospital and treated with commercial stock vaccins with a hundred other scarlet fever cases admitted but not treated with vaccin, the results obtained by Dr. MacIntyre were practically nil. The object in giving the vaccin was to prevent complications; and, according to the report, "the difference between these two series is very small, and might be found between any similar series of hospital cases."

Five cases of septic scarlet fever were treated in the acute stage

with autogenous streptococcic vaccin, and again it could not be said that the vaccin treatment had any definite effect in any of the cases.

Again, autogenous vaccin was used in the treatment of nasal and aural discharges. Large doses were used, 100 million as the initial injection, repeated at five-day intervals. Out of 28 cases of nasal discharge treated, 23 were cured, while 5 showed no improvement. Out of 14 cases of aural discharge treated, 8 were cured, while 6 remained chronic.

Dr. MacIntyre concludes that the cure of nasal discharges can be obtained more quickly with vaccin treatment than with ordinary methods, while the same statement cannot be made in the case of aural discharges. D. P. W.

Medical News Items

HUTCHINSON COLLECTION GIVEN TO JOHNS HOPKINS.—The Jonathan Hutchinson collection of original drawings, colored plates and photographs, illustrating clinical work in medicine and surgery and constituting one of the rarest collections known to physicians, was recently secured by Sir William Osler and presented to Johns Hopkins Medical School by Wm. A. Marburg.

NEW YORK POLYCLINIC RECEIVES GIFT.—By the will of Mrs. Anna Palmer Draper the New York Polyclinic Medical School recently received an endowment of $50,000, and $10,000 as a gift from a member of the Board of Trustees of the institution.

PLACE DE CURIE.—A small park, formed by tearing down the old rue Dauphine in Paris, has been given the name of Curie, in honor of the discoverer of radium.

MATERNITY HOSPITALS FOR CUBA.—A law providing $400,000 for the erection of six maternity hospitals, one in each province of the island, has recently been signed by the president of Cuba. Of this sum, $100,000 is allotted for the hospital in the province of Habana, and $60,000 each for the hospitals in the other provinces. The money is to be appropriated from the sum accruing to the state from unclaimed lottery prizes.

FRENCH EXCHANGES RESUMED.—The *Journal d'Urologie*, the *Archives des Maladies du Coeur*, and *Annales de Gynecologie et*

d'Obstetrique, have resumed publication. It is the intention of these publications to supply the missing numbers for 1914, which will be made up in the course of the current year to complete the volume to which the subscribers are entitled.

An Educational Lunch Room.—The Bureau of Public Health Education of the City of New York has opened an educational lunch room. Carefully arranged lunches are provided at a low cost with the object of furnishing food at cost price and of educating its patrons in food values and nutrition. A statement of the number of calories and grams of protein contained in each article appears on the menu.

Occupational School for Invalids.—In line with the healthful theory, which is becoming recognized among the members of the medical profession, that semi-invalids are usually given too much time for introspection, and that if useful, interesting occupation is provided their symptoms really become less acute, the Battle Creek Sanitarium has instituted an "Occupational School," in which many of the patients have already interested themselves to their health betterment. The branches taught in this school include weaving, basketry, stenciling, clay-modeling and others. The efficacy of the project has been clearly demonstrated, especially in quieting nervous patients.

Louisiana State Board.—A meeting of the Louisiana State Board of Medical Examiners was held in this city, June 3-4-5, 1915, for the purpose of conducting the examinations for state practice, with the following members present: Drs. J. G. Martin, President; S. L. White, Vice-President; Leon J. Menville; Homer Dupuy, and E. L. Leckert, Secretary.

Fifty-seven candidates, four of whom were colored, were present for examination in medicine. Forty-one made the required average and were granted certificates. There were ten failures and the certificates of six who made the required general average were withheld pending the adjustment of certain deficiencies in their examination. Of the ten failures seven had previously appeared for examination and failed to pass.

The names of those who received certificates follow:

William Holcombe Aiken, Walter Joseph Baker, James William Butts, Jack Thompson Cappel, Octave Charles Cassegrain, Frank Chetta, William Louis Culpepper, John Willis

Dupuis, Edward Beeg Faget, Ernest Cleveland Faulk, John William Faulk, Powell Beal Gardner, Marcellus C. Garner, Addley Hogan Gladden, Jr., George Henry Hauser, Harry Heiman, Roland Frank Hotard, David Hyman, Louis Alexander Hebert, Ralph Wilber Humphreys, Harold Leslie Kearney, Kyle Johnston Kinkead, Moise Lafleur, Thomas Latiolais, John Aden Lewis, Louis Vyasa James Lopez, Julius Watkins McCall, Alva Burton McKie, Abraham Mattes, Daniel Joseph Murphy, Kirby Arthur Roy, Henry Theodore Simon, Harry Vernon Sims, Elbert LaFayette Spence, John Lilly Trice, Irenaeus Nicholson Tucker, Charley Kendrick Wall, Charles Arthur Wyatt, Harry Loomis Zengel. Colored: Joshua Fitz-Osbert Anderson, Wade Evangelist Griffin.

At the same meeting two physicians were granted certificates by reciprocity, namely: Sanford Archibald Winsor, Rush Medical College, Illinois examination; William Johnston Yongue, University of Louisville, Kentucky examination.

At the midwifery examination, held June 4, twenty-one applicants were presented, ten of whom were colord. Six passed and received certificates; fifteen faild.

Those who received certificates follow:

Mrs. Ellen Barker (colored), Mrs. Lena P. Barnum, Mrs. Neomie A. Laudun, Mrs. Lena Lombardino, Millie Randall (colored), Mrs. Irene Scully.

The next meeting of the board, to be held for the purpose of examination, will take place in this city December 2-3-4, 1915.

Memorial for Madame Depage.—There is a movement on hand among English surgeons to establish a permanent memorial to Mme. Depage, of Brussels, who was lost on the Lusitania while on her way home with money collected in this country for the Red Cross.

Dedication of Georgia Hospitals.—On the first of June the Medical Department of the University of Georgia dedicated the new teaching hospitals provided for it by the city of Augusta. In the evening of the same day the commencement exercises took plac at the Grand Opera House.

Names Is Names.—Dr. J. B. Ache is a dentist at Uniontown, Pa.; Dr. M. D. Cure lives at Weston, W. Va.; Dr. Dye

lives at Sisterville, W. Va.; and Dr. A. Sickman lives at North Charleroi, Pa.

TULANE MEDICOS GET ROCKEFELLER POSITIONS.—Two graduates of the 1915 class of the Tulane School of Medicine have won positions with the International Health Commission of the Rockefeller Foundation for the study of the hookworm and other diseases. The graduates are Dr. Harold Leslie Kearney and Dr. P. B. Gardner.

CHARITY HOSPITAL GRADUATES NURSES.—The Charity Hospital Training School graduated fifteen nurses at that institution on June 4. Dr. J. A. Danna, chairman of the faculty of lecturers at the training school delivered the annual address, and Charles I. Denechaud, member of the board of administrators, presented the diplomas. The graduates were: Misses Minnie Garlepied, Ollie Aycock, Mary Louise Reaves, Winona M. Chauvin, Corinne Graner, Hettie E. Brosset, Nancie Tate, Celine Donlon, Dolores J. Schaffer, Elizabeth Finnegan, I. Nettie Delaney, Beatrice Laiche, Elizabeth Donlon, Frances Ruth Fabing and Celine Rateau.

HEALTH INSPECTORS' REQUIREMENTS RAISED.—It has been announced by Dr. S. S. Goldwater, Commissioner of Health of New York City, that in future all applicants for the position of medical inspector in the department, to which physicians only are eligible, must show at least one year of hospital experience as an intern in addition to the four-year medical course.

GOLF BET FOR ENDOWMENT.—The daily press gives as news the following: One of Philadelphia's wealthy residents has made a bet with a well-known surgeon of that city that he can beat him at a game of golf to be played in the autumn. If he is beaten he agrees to give $100,000 to endow a chair of surgical research in the University Medical School, the money to be paid into the treasury of the university before January 1, 1916. If he wins, the surgeon is to buy ten $100 shares of the stock of the golf club.

"TWILIGHT SLEEP" UNSATISFACTORY.—The "twilight sleep" treatment in maternity cases has been discontinued by the St. Louis City Hospital. The treatment has been employed since last February and the reason for its discontinuance is that the method has not proved to be entirely satisfactory.

Women Students During the War.—In the winter semester, 3,914 students were registered in German universities, which is an increase of 225 over the previous year. Of this increase, about 100 are in medical courses (944 as compared with 859) and 34 in dentistry (66 as compared with 32). About 25 per cent of the women are in Berlin University.

Health Rules in Many Languages.—A pamphlet printed in English, Bohemian, Italian and Yiddish has been issued by the health commissioner of Baltimore, of which ten thousand copies are to be distributed. This pamphlet teaches how to destroy flies and mosquitoes and tells tenants how to keep their premises in a clean and sanitary condition. It is said that the Poles of Baltimore have asked the commissioner to have the pamphlet translated into Polish.

Relief Fund for the Belgian Profession.—The report of the treasurer, Dr. F. F. Simpson, of the committee of American physicians for the aid of the Belgian profession, shows, for the week ending June 12, 1915, a total disbursement of $7,310.04.

Annual Commencement of Tulane University.—The annual commencement of the Tulane University of Louisiana took place at the French Opera House on June 2, 1915. The exercises were opened by a prayer from the Rev. David Sessums, D. D., and the alumni address was delivered by Arthur Alphonse Moreno of the Class of 1905. Dr. Robert Sharp, A. M., Ph. D., president of the University, made a report, which was followed by the conferring of the degrees. A unique event which marked the occasion of this year's exercises was the conferring of the degree of LL. D. upon two Southern women—Mrs. Ruth McEnery Stuart and Miss Grace King, of New Orleans—whose reputations as poet and author are well known. There were seventy-five graduates in medicine this year.

Tulane Medical Class of 1915.—The following is a list of the Tulane medical class of 1915, who have been papointed as interns in the New Orleans Charity Hospital, Touro Infirmary and Illinois Central R. R. Hospital: Drs. J. N. Tucker, H. L. Zengel, H. V. Sims, H. T. Simon, K. A. Roy, C. A. Quina, D. J. Murphy, J. W. McCall, D. Hyman, L. A. Hebert, G. H. Hauser, A H. Gladden, Jr., G. K. Gerson, J. W. Dupuis, F. Chetta, J. T. Cappel, T. T. Batson, at Charity Hospital; C. K. Wall,

C. H. Townsend, J. W. Garrett, P. I. Donald, W. W. Burns, J. F. Baldwin, Touro Infirmary; V. K. Allen, Illinois Central R. R. Hospital.

BREVIUM.—Prof. Goehring of Karlsruhe has announced the newly discovered element of brevium, which is a radio-active disintegration product of uranium.

THE WARREN TRIENNIAL PRIZE.—A prize of $500 will be awarded on essays in English, French or German, representing original, unpublished work in physiology, surgery or pathologic anatomy. The essays must be typewritten and will be received up to April 14, 1916. For further information address Dr. Frederic A. Washburn, Resident Physician, Massachusetts General Hospital, Boston.

VERMILION PARISH MEDICAL SOCIETY ADOPTS RESOLUTIONS.—The following resolutions were adopted and unanimously passed by the Vermilion Parish Medical Society in session, May 20, 1915:

WHEREAS, The widespread use of harmful patent and proprietary, so-called, medicines is an evil;

WHEREAS, These nostrums are pernicious and baneful in effect;

WHEREAS, The enormous profits accruing from the sale of these nostrums are derived largely from the income of the poor and the unfortunate;

WHEREAS, The Vermilion Parish Medical Society is in full sympathy with the efforts of the United States Government and Post Office Department in their attempts to control the deception practiced in the manufacture, advertisement and sale of the so-called remedies, especially Wine of Cardui, Swamp Root, Syrup of Figs, Mothers' Friend, Vitalitas, and like preparations; and in hearty accord with the activities of the State Board of Health of Louisiana in its attacks on these preparations and with its regulations which require that all manufacturers print contents on labels or file with said board formulas used; therefore be it

Resolved, That we unanimously approve the campaign now in progress by the Louisiana State Board of Health and pledge to their efforts our earnest and active support in the hope that this evil may be controlled and ultimately eliminated.

REMOVALS.—Dr. C. S. Wilson, from Winnsboro, La., to Oblong, Ill.

Journal of Pediatrics, to 25 East 60th Street, New York City.

PERSONALS.—Dr. Henry P. Walcott, of Cambridge, Mass., was elected president of the American Academy of Arts and Sciences at the annual meeting of that organization recently held in Boston.

Dr. Richard Pearson Strong has been appointed regular professor of tropical medicine at Harvard University.

Dr. John G. Bowman has been appointed director of the American College of Surgeons, with executive offices at 30 North Michigan Avenue, Chicago.

Dr. H. T. Summersgill, superintendent of the University of California Hospital, has been appointed to succeed the late Dr. W. O. Mann, of Boston, as president of the American Hospital Association.

Dr. Edward C. Rosenow, of Chicago, has been appointed chief of bacteriological research, Mayo Foundation, Rochester, Minn. Dr. Rosenow will begin his new work on July 1.

Dr. Paul Gronnerud has been appointed surgeon to the West Side Hospital, Chicago, and professor of gynecology and head of the department of operative surgery in the Illinois Postgraduate Medical School. Dr. Gronnerud was formerly professor of operative surgery at the Chicago Polyclinic, but recently resigned.

Dr. Wm. deB. MacNider, Chapel Hill, N. C., of the University of North Carolina Medical Department, has sold the United States his residence lot for a postoffice site for $8,500.00.

Dr. Isadore Dyer and family will spend the summer at Pass Christian, Miss.

Dr. Chas. Chassaignac and family will spend the month of August at Gulfport, Miss.

MARRIED.—On June 25, 1915, Dr. Charles Leverich Eshleman to Miss Anais Legendre, both of this city.

On June 23, 1915, Dr. Edward Lacy King to Miss Edith Chalin Follett, both of this city.

DIED.—On June 1, 1915, Dr. Robert Clement French, at Touro Infirmary, a prominent physician of Natchez, Miss.

On June 1, 1915, Dr. J. D. Miller, a prominent physician of Batesville, Miss.

On June 23, 1915, Dr. Edmond W. Bourg, formerly of Assumption Parish and a resident of New Orleans for the past nine years, aged 66 years.

Book Reviews and Notices

All new publications sent to the JOURNAL will be appreciated and will invariably be promptly acknowledged under the heading of "Publications Received." While it will be the aim of the JOURNAL to review as many of the works accepted as possible, the editors will be guided by the space available and the merit of respective publications. The acceptance of a book implies no obligation to review.

A Text-Book of Diseases of the Nose and Throat, by D. Braden Kyle, A. M., M. D. With 272 illustrations, 27 of them in colors. Fifth edition, thoroughly revised and enlarged. W. B. Saunders Company, Philadelphia and London, 1914.

Dr. Kyle's book has long been recognized as one of the foremost standard works on diseases of the nose and throat. From the very beginning, Kyle had treated these affections in their relation to the general system, and has thus emphasized the point that a specialist should have a good, broad knowledge of general medicine.

The arrangement of his text is particularly to be commended, for it shows unity of design in pathology and etiology as well as in treatment. The entire work has been revised. The technic of tonsil surgery has been brought up to date. His chapter on vaccin-therapy in infections of the accessory sinuses is concise, but very valuable. Some cases of sinusitis refuse all operative intervention, and in such cases the specialist need not feel that he is in a hopeless plight. A successful application of this treatment calls for a fair knowledge of bacteriology and other matters on the part of the physician. While the field of application is not yet fully determined, we can find abundant grounds for hope in any chronic sinusitis that resists ordinary treatment, and in which there is a pure culture of the infecting micro-organism, and in chronic ethmoidal suppuration that does not heal after exacteration.

We are glad to welcome this new edition of a valuable work, and bespeak for it a continuance of the favor that it has always enjoyed.

McSHANE.

Urinary Analysis and Diagnosis, by Louis Heitzman, M. D. Third revised and enlarged edition. William Wood & Co., New York, 1915.

This edition is a considerable improvement over the former editions. The author has attempted to bring the work up to date. It does not include some of the more complicated tests, but includes all of those practical in any except the best equipped laboratories.

The several different tests for obtaining the same information are given, and the reader is left to choose for himself.

The clinical indications of various findings are discussed, and the book will be found especially valuable for the general practitioner, most of whom need suggestions as to what to test or examine for and what the significance of the urinary findings is.

BASS.

Infection, Immunity and Specific Therapy, by John A. Kolmer, M. D., Dr. P. H. W. B. Saunders Company, Philadelphia.

This is the best and most complete work of its kind that has come to the reviewer's attention. There are 813 pages of well-written text, in which the fundamental principles of infection, immunity, specific serum tests, specific reactions and specific therapy are plainly set forth. The technic for the many serum tests is stated in the very best way and is easily understood.

In the last part of the book the author has arranged a series of sixty exercises, consisting of 112 experiments in experimental infection and immunity. These are complete and well suited to the requirements of the advanced student.

I recommend this book most highly to all students of medicine and physicians who would inform themselves upon this important and, we may say, necessary part of medical knowledge. BASS.

Diabetes Mellitus. Designed for the Use of Practitioners of Medicine, by Nellis B. Foster, M. D. J. B. Lippincott Company, Philadelphia and London.

This book begins with a short, readable chapter on "Normal Metabolism." The "Sources of Glucose in the Animal Body" follows, and a goodly chapter it is. Next comes a chapter on "Experimental Glycosuria." After a brief review of the "puncture diabetes" of Claude Bernard, there is some considertion of the work of Eckhard, Pfluger, Rudinger, Neubauer, Von Mering, Minkouski, Pratt, Sandmeyer, Virchow, Bouchardat, Frerichs, Lancereaux, Lépine, Sauerbruck, Cohnheim, Forschbach, Hedon, Zubzer, Marcens, Underhill, Grey, von Noorden, Zuntz, Grube and Lusk.

The importance of acidosis is recognized in a chapter of twenty-two pages. "Pathogenesis" comes next; then "History," closely followed by "Etiology." The importance of "pathology" is emphasized in a fair chapter, reference being made to the best work in this direction. "Symptomatology" required a chapter of thirty-two pages. "Renal Diabetes" is given scant two and a half pages. "Diagnosis and Considerations which Affect the Course of the Disease" follows; then comes a chapter on "Total Metabolism in Diabetes," and next the chapter of "Treatment," which is the largest in the work, covering forty-five pages. The final chapter, on "Identification of Sugars," is thoroughly practical. The index follows.

Dr. Foster has given us a readable and practical book.

STORCK.

Biochemic Drug Assay Methods, with Special Reference to the Pharmacodynamic Standardization of Drugs, by Paul S. Pettenger, Ph. G., Phar. D. P. Blakiston's Sons & Co., Philadelphia.

As stated by the author in the preface, this "Manual of Bichemic Drug Assay Methods" is intended for students of pharmacy, pharmaceutic chemistry and medicine; also for the use of experts engaged in laboratories devoted to drug standardization work.

"That drugs should be instruments of precision" is generally conceded, and any means to this end should be encouraged.

This book will be interesting to the class of students for which it was primarily conceived. STORCK.

The Therapeutics of the Circulation, by Sir Lauder Brunton, Bt., M. D., D. Sc., LL. D. (Edin.), LL. D. (Aberd.), F. R. C. P., F. R. S.

Dr. Brunton deserves the thanks of the medical profession for this very acceptable revision of the first edition of his book. It consisted of eight lectures delivered in the spring of 1905. The purpose of such lectures, as expressed by the University of London in establishing them, was "to present the results of recent investigations by the investigators themselves."

In the arrangement of this, the second edition, Dr. Brunton has wisely altered the matter, dividing it for greater convenience into chapters. Much new matter is added.

For those practitioners who desire first-hand information on the physiology, pathology and pharmacology of cardio-vascular conditions, the book will serve this purpose excellently. While not occupying the foremost place in the book, therapeutics is sanely dealt with.

The practitioner desiring to inform himself further will find ample references to literature accompanying the respective chapters. The practitioner who has permitted himself to rust will find much to brighten him up in this small volume. STORCK.

Diseases of Bones and Joints, by Leonard W. Ely, M. D. Surgery Publishing Company, New York.

Dr. Ely is associate professor of surgery in Leland Stanford, Jr., University, of San Francisco, and as such has devoted a great deal of his time to the special subjects presented in his cleverly written book.

We heartily recommend this valuable little work for the concise way in which he expresses his ideas and opinions, and also for the numerous illustrations which faithfully corroborate the descriptive matter. Practical osteology is first taken up, followed, as it should be, by the physiology and pathology of bones and joints.

Tuberculosis naturally claims a large space. The chapter on syphilis is certainly worth reading and remembering. The various

acute and chronic articular and osseous infections and lesions are all briey but tersely commented on. LARUE.

Guiding Principles in Surgical Practice, by Frederick Emil Neef, M. L., M. D. Surgery Publishing Company, New York.

Dr. Neef has embodied in this volume of 160 pages merely his personal views in the guidance in surgical practice. He has quite thoroughly covered the ground, basing his conclusions on clinical observations in the operating room and at the bedside.

The careful study of the patient, the most essential preliminary to the formation of surgical judgment; the operative preliminaries and technic, the all-important post-operative care, are all given due consideration. A line here and there on the physiological repair of tissues proves profitable reading.

The book is neatly bound, and has for ready reference an attractive marginal index. LARUE.

Obstetric Nursing, by Charles Sumner Bacon, Ph. B., M. D. Lea & Febiger, Philadelphia and New York, 1915.

Of the many volumes on obstetric nursing that have recently appeared, this one must be ranked among the best. It is well arranged, amply illustrated, and written in a pleasing style. As a text-book for training schools for nurses, or for the practical nurse, it can be highly recommended. MILLER.

Public Health Laboratory Work, by Henry K. Kenwood. Sixth edition. Hueber, New York, 1914.

Whoever is familiar with the previous editions of this book will welcome the present new one. The methods and procedures laid down under the six main and various subheadings include all those likely to be of value to persons engaged in public health work. The author, whose wide experience enables him to eliminate the unessential and include the more necessary material, has dealth with his subjects with brevity and conciseness. The sketches of water detritus in the front part of the volume are not of much value, are crude, and, to say the least, are out of place in that position. One would think they belong where the subjects which they are intended to enlighten is found. The author evidently considered that light and heat were matters for architect or engineer, though these subjects are of general interest to the public health inspector. It is a book of great value in the laboratory where work of the nature for which it is intended is carried on. L. C. SCOTT.

Psychanalysis. Its Theories and Practical Application, by A. A. Brill, Ph. B., M. D. Second edition, thoroughly revised. W. B. Saunders Company, Philadelphia and London, 1914.

Since the publication of the first edition of this work, which we reviewed a little over a year ago, there appeared at various times

severe criticisms on the one hand and eulogies on the other on the Freudian theories and methods of psychanalysis from psychiatrists and neurologists, both of this country and abroad. Such comments have helped to bring this work still more before the profession. Today we have before us a second edition of the work, which has been thoroughly revised and enlarged by the addition of a chapter on "The Unconscious Factors in the Neuroses," another on "Fairy Tales as a Determinent of Dreams and Neurotic Symptoms," and a "Glossary" giving a definition of the neurological terms used through the book.

In commenting again we may say that, though we do not individually accept all that the Freudian views imply, yet this method of psychanalysis and its practical application are with us to stay, and will no doubt continue to prove of benefit, but only in the hands of those thoroughly trained in the study and qualified to practice this most intricate subject. CAZENAVETTE.

Diseases of the Skin, by James H Sequira, M D. (Lond.), F. R. C. S. (Eng). Second edition. P. Blakiston's Sons & Co. 1915.

The second edition of this excellent work on skin diseases shows many evidences of careful revision. There are new plates and new chapters. More field is covered than in the first edition and the chapters on syphilis and pellagra are especially noteworthy as being thorough and up to date. The illustrations are judiciously selected and some of the colored plates are marvelously exemplifying. The author departs from the usual classification of skin diseases, grouping these according to the predominant etiological factor. The student of dermatology will find this method of large assistance as diseases of different character are brought in closer contrast and the diagnosis is more readily understood.

The references are numerous but by no means exhaustive—aimed evidently at aiding the student to a wider reading rather than a precise commentary.

The treatment is everywhere clearly presented and sufficiently so to aid in the care and cure of those diseases which are amenable to relief. The work is altogether a most worthy effort of a painstaking author and it is presented in the best of form by a careful publisher. DYER.

A History of Laryngology and Rhinology. By Jonathan Wright, M. D., Second edition. Philadelphia and New York: Lea & Febiger, 1914.

It is always interesting and profitable to delve into the past and see how the present came to be what it is. The history of medicine is one of the most fascinating of all studies. In his present work, Dr. Jonathan Wright fully sustains the interest in a special branch of the medical art that attaches to all parts of medical history. He goes into all phases of the growth of our knowledge of laryngology

and rhinology, and shows how the seeds planted by our predecessors are now bearing fruit continuously and increasingly. The present is ever the superstructure built upon the foundations of the past. We are under perpetual obligations to the foundation-builders, for if they had not done that labor for us we would be under the painful necessity of doing that same work ourselves, and leaving behind us monuments of industry and learning that would excite the amusement and pity of our successors just as we smile at and pity some of the work of our predecessors. However it may not be amiss to mention that Dr. Wright says a crude but effective method of laryngeal intubation was practised during the time of Hippocrates, which antedates Dr. Jos. O'Dwyer's time by about twenty-three centuries. Many other interesting facts are brought out by Dr. Wright. A perusal of his work not merely entertains us, but causes us also to conceive a profound respect for the men who gave of their best in the cause of humanity, and oftimes wrote and toiled in the fear of persecution as well as in the face of adverse circumstances.

McSHANE.

The Difficulties and Emergencies of Obstetric Practice, by Comins Berkeley, M. A., M. D., M. R. C. S., F. R. C. P., and Victor Bonney, M. S., M. D., F. R. C. S., M. R. C. P. Second edition. P. Blakiston's Sons Co., Philadelphia.

Every possible complication of pregnancy appears to have been discussed in this excellent book. It was arranged with the idea of affording guidance in plain terms to the practitioner when he is called upon to deal with difficulties and emergencies that attend in obstetric practice. The authors are surgeons who enjoy large hospital and teaching positions over London, and they have endeavored to give as far as possible their own personal views and results in this book.

A book intending to cover such a large subject must necessarily be brief in many particulars. This is the only feature which might be improved in future editions. The arrangement of the book is excellent and for this reason a valuable reference volume.

The second edition has been thoroughly revised and many illustrations added.

MILLER.

Tropical Diseases. A Manual of the Diseases of Warm Climates, by Sir Patrick Manson, G. C. M. G., M. D., LL. D. (Aberdeen), etc. Fifth edition. Revised. Wm. Wood & Co., New York.

"Manson on Tropical Diseases" is the refuge of most students interested in this subject and the handy volume in review again emphasizes the value of the work of this pioneer in the field.

The advances in tropical medicine, produced by a growing number of the workers in the field, has necessitated a complete revision after eight years and throughout the book this careful task is in evidence. A brief but comprehensive description of Bass' cultivation

of the malaria parasite is given, which forms a part of a most excellent article on Malaria, altogether covering over a hundred and fifty pages of the book. This is a basis on which to consider the scope of other subjects discussed, in their relative importance, occupying proportionate space. There are many excellent illustrations, especially those dealing with bacteriological and helminthological detail. On the other hand, the book is marred by a few reproductions of archaic plates, done over in poor wood cuts, and in nowise indicating anything which can resemble the disease discussed. This is particularly true of the illustrations employed in the articles on leprosy and yaws. This in nowise detracts from the text, which is in every way complete in covering the subjects embraced in the field of tropical diseases. DYER.

The Backward Baby, by Herman B. Sheffield, M .D. Alvarenga Prize Essay for 1914. Rebman Co., New York.

This is an analytical presentation of the subject of amentia, beginning with theories of the originating and contributing factors producing it, going on to the examination methods to be followed in determining types and stages and continuing with a discussion of varieties of types. Treatment finds extended notice and an excellent bibliography concludes the book.

The essay is full of interest and offers to the student of the delinquent a mass of material for thought. DYER.

Publications Received

LEA & FEBIGER. Philadelphia and New York, 1915.
Diseases of the Digestive Organs, by Chas. D. Aaron, Sc., M. D.
Progressive Medicine, edited by Hobart Amory Hare, M. D., assisted by Leighton F. Appleman, M. D. June 1, 1915.
Outlines of Internal Medicine for the Use of Nurses, by Clifford Bailey Farr, A. M., M. D.

THE YEAR BOOK PUBLISHERS. Chicago, 1915.
The Practical Medicine Series. Volume 11: General Surgery.

J. B. LIPPINCOTT COMPANY. Philadelphia and London, 1915.
International Clinics. Volume 11, Twenty-fifth Series, 1915.

WASHINGTON GOVERNMENT PRINTING OFFICE. Washington, D. C., 1915.
Public Health Reports. Volume 30, Nos. 20, 21 and 22.
An Adequate Navy and the Open-Door Policy; The Truth About Alcohol. Speeches of Hon. Richmond P. Hobson, of Alabama.
Report of the Department of Health of the Panama Canal for the Month of March, 1915.

MISCELLANEOUS:
Proceedings of the Medical Association of the Isthmian Canal Zone for the Half Year, October, 1912, to March, 1913. Volume V, Part 11.

Reprints

Primary Tumors of the Bladder in Children. Report of a Case of a Fibrous Polypus. Gall Stone Recurrences, by Emil C. Robitshek, M. D.

Transactions of the American Society of Tropical Medicine, Volume 9, 1914. (Tulane University Press, New Orleans, La.)

"Live a Little Longer"—The Rochester Plan, by Miss M. E. Bingman.

Eleven Cases Rœntgenographic and Operative Findings, by A. Judson Quimley, M. D., and William Seaman Bainbridge, A. M., Sc. D., M. D.

Teach Your Deaf Baby to Talk, by Mrs. F. W. Jeiks; **Methods in Lip-Reading,** by Martha A. Bruhn; **The Role of Association in Lip-Reading,** by H. D. Kitson; **The Experience System of Speech Reading,** by Jerry Albert Pierce; **Speech Problems in Combined System Schools,** by Frank M. Driggs; **The "Combined System" Diagnoses Its Own Case With Remarkable Truth and Frankness; Was the Ultimate Elimination of Oralism Foreseen?** by John Dutton Wright; **We Must Make Them Talk,** by Francisco Renzetti. (Published by the Volta Bureau, Washington, D. C.)

Fractures of the Neck of the Femur: Its Treatment; Femur Fractures; Statistics of End-Results, by John B. Walker, M. D.

Mathematics in Medicine; Cancer En Cuirasse, Case Report, by Samuel E. Earp, M. S., M. D.

Life-Saving as a Function of Life Insurance, by Eugene Lyman Fisk, M. D.

A Study of Locomotor Ataxia Based upon the Treatment of 375 Cases, by C. H. Burton, M. D., and Frank Burton, B. S.

America's Pressing Mortality Problem, by E. E. Rittenhouse.

Prophylactic and Therapeutic Immunization Against Tuberculosis; Its Possibilities and Limitations, by Silvio H. Von Ruck, M. D.

The Proper Time to Collect Sanguinaria, by O. A. Farwell.

The Campaign Against Cancer; Report of the Commission on Cancer. (From the Medical Society of the State of Pennsylvania, J. M. Wainwright, M. D., Chairman, Scranton, Pa.)

Carcinoma of the Breast, by John B. Deaver, M. D.

Some Diagnostic Errors in Differentiating Lesions of the Cervix, by E. A. Weiss, M. D.

Scientific Medicine vs. Quackery; Tragedies in Sexologist's Practice; Chronic Prostatitis and Its Treatment by the General Practitioner; Chancroids and Their Treatment by the General Practitioner, by William J. Robinson, M. D.

War and Its Criminal Anthropology, by Arthur McDonald.

Microphotographic Study of the Tubercle Bacillus, by Wm. J. Manning, M. D.

MORTUARY REPORT OF SHREVEPORT.

Computed from the Monthly Report of the Board of Health of the City of Shreveport for May, 1915.

CAUSE.	Resident				Non-Resident				
	Whi.		Col.		Whi.		Col.		
	M	F	M	F	M	F	M	F	Total
Typhoid Fever	1	..	..	1	..	..	1	..	....
Intermittent Fever (Malarial Cachexia)	..	..	..	..	..	..	..	..	....
Smallpox	..	..	..	..	..	..	..	..	....
Measles	..	..	..	..	..	..	..	..	....
Scarlet Fever	..	..	..	..	..	..	..	..	....
Whooping Cough	..	..	..	..	..	1	..	..	....
Diphtheria and Croup	..	..	..	..	..	..	..	..	....
Influenza	..	..	..	..	..	..	..	..	....
Cholera Nostras	..	..	..	..	..	..	..	..	....
Pyemia and Septicaemia	..	..	..	..	..	..	..	..	....
Tuberculosis	..	..	4	2	1	1	1	1	....
Cancer	..	..	..	..	..	..	..	..	....
Rheumatism and Gout	..	..	..	..	..	..	..	..	....
Diabetes	..	..	..	..	1	..	..	..	....
Alcoholism	..	..	..	..	..	..	..	..	....
Encephalitis and Meningitis	..	..	..	..	..	..	..	..	....
Locomotor Ataxia	..	..	..	..	..	..	..	..	....
Congestion, Hemorrhage and Softening of Brain	1	..	..	1	..	..	..	..	....
Paralysis	..	..	..	..	..	..	1	..	....
Convulsions of Infancy	..	..	..	..	..	..	..	..	....
Other Diseases of Infancy	..	..	..	..	..	..	..	..	....
Tetanus	..	..	..	..	..	..	..	..	....
Other Nervous Diseases	..	..	..	..	..	..	..	..	....
Heart Diseases	..	..	..	..	..	..	..	..	....
Bronchitis	..	..	..	..	1	1	2	1	....
Pneumonia and Broncho-Pneumonia	1	..	1	2	..	..	..	..	....
Other Respiratory Diseases	..	..	..	..	..	..	..	..	....
Ulcer of Stomach	1	..	1	..	..	..	..	..	....
Other Diseases of the Stomach	..	..	..	..	..	..	..	..	....
Dysentery	..	..	..	..	..	..	1	..	....
Diarrhea and Enteritis, under 2 years	..	..	1	..	..	..	1	..	....
Diarrhea and Enteritis, over 2 years	..	..	..	..	..	..	..	..	....
Hernia, Intestinal Obstruction	..	1	..	1	1	..	..	..	....
Cirrhosis of Liver	..	..	1	1	..	..	..	..	....
Other Diseases of the Liver	..	..	1	1	..	..	..	..	....
Simple Peritonitis	..	..	..	..	..	..	..	..	....
Appendicitis	..	..	..	..	..	..	..	..	....
Bright's Disease	..	..	..	..	..	..	..	..	....
Other Genito-urinary Diseases	..	..	..	..	..	..	1	..	....
Puerperal Diseases	..	..	..	..	..	..	..	..	....
Senile Debility	..	..	..	..	..	..	..	..	....
Suicide	..	..	..	..	..	..	..	..	....
Injuries	1	1	1	..	2	..	..	1	....
All Other Causes	3	3	7	8	3	4	10	12	....
Total	8	5	17	17	9	7	18	15	96

Still-born Children—White 2, Colored 5; total 7.

Population of City (estimated)—White 24,000, Colored 16,000; total 40,000.

Death Rate per 1000 per annum for Month—White 5.42; colored 21.24; total 11.75.

MORTUARY REPORT OF NEW ORLEANS.

Computed from the Monthly Report of the Board of Health of the City of New Orleans for May, 1915.

Cause.		Colored	Total
Typhoid Fever	1	4	5
Intermittent Fever (Malarial Cachexia)	1	3	4
Smallpox	....	....	....
Measles	1	.....	1
Scarlet Fever	....	....	....
Whooping Cough	4	3	7
Diphtheria and Croup	4	2	6
Influena	4	3	7
Cholera Nostras	1	.....	1
Pyemia and Septicemia	....	1	1
Tuberculosis	43	58	101
Cancer	22	11	33
Rheumatism and Gout	....	....	....
Diabetes	3	.....	3
Alcoholism	....	....	....
Encephalitis and Meningitis	5	.....	5
Locomotor Ataxia	....	....	....
Congestion, Hemorrhage and Softening of Brain	22	8	30
Paralysis	3	2	5
Convulsions of Infancy	2	.....	2
Other Diseases of Infancy	9	3	12
Tetanus	1	1	2
Other Nervous Diseases	3	1	4
Heart Diseases	58	42	100
Bronchitis	2	3	5
Pneumonia and Broncho-Pneumonia	21	22	43
Other Respiratory Diseases	2	.....	2
Ulcer of Stomach	1	1	2
Other Diseases of the Stomach	1	1	2
Diarrhea, Dysentery and Enteritis	38	47	85
Hernia, Intestinal Obstruction	3	1	4
Cirrhosis of Liver	5	3	8
Other Diseases of the Liver	2	.....	2
Simple Peritonitis	1	.....	1
Appendicitis	7	1	8
Bright's Disease	33	22	55
Other Genito-Urinary Diseases	10	11	21
Puerperal Diseases	8	.....	8
Senile Debility	2	.....	2
Suicide	9	.....	9
Injuries	20	16	36
All Other Causes	11	33	44
Total	363	303	666

Still-born Children—White, 18; colored, 29. Total, 47.

Population of City (estimated)—White, 272,000; colored, 101,000. Total, 373,000.

Death Rate per 1000 per Annum for Month—White, 16.01; colored, 35.99. Total, 21.43. Non-residents excluded, 18.79.

METEOROLOGIC SUMMARY (U. S. Weather Bureau).

Mean atmospheric pressure 29.90
Mean temperature ..... 77.
Total precipitation ..... 3.64 inches
Prevailing direction of wind, southwest.